SOAP and SANITARY CHEMICALS

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Aug 23'51

In this issue...

Detergent use still up while soap sales drop

* * *

Sanitary chemicals for institutional markets

* * *

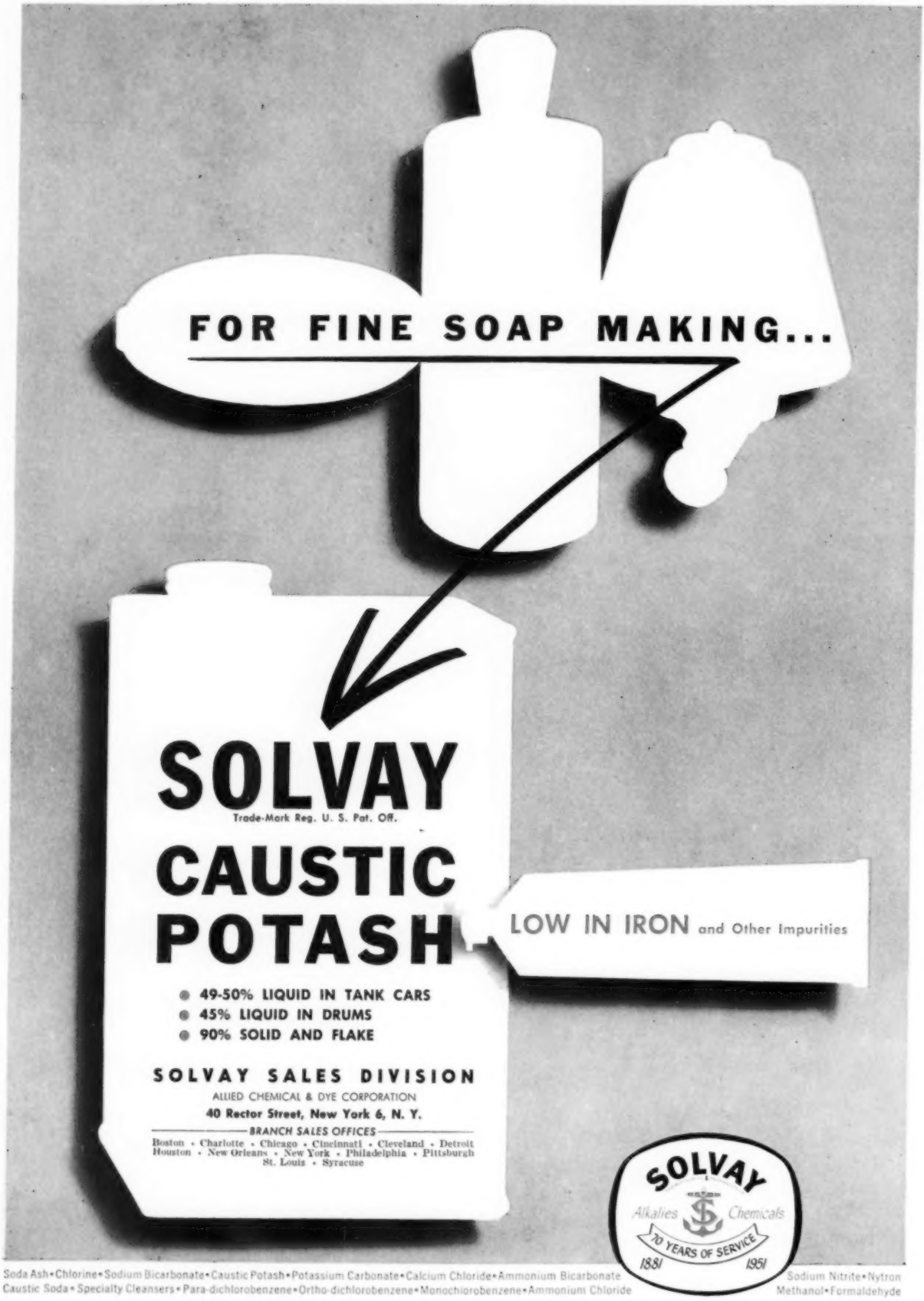
Detergent-Sanitizers for one-step cleaning

* * *

Aerosol insecticides in aircraft sanitation

Cover photo . . . New White Rain shampoo now being distributed nationally by Toni Co., Chicago. Bottle by Brockway Glass; cap by Standard Cap and Braun Hobar; filled on Pneumatic Scale equipment; capped and coded by Consolidated Packaging equipment.

AUGUST 1951


FOR FINE SOAP MAKING...
SOLVAY
Trade-Mark Reg. U. S. Pat. Off.
CAUSTIC POTASH
LOW IN IRON and Other Impurities
49-50% LIQUID IN TANK CARS
45% LIQUID IN DRUMS
90% SOLID AND FLAKE
SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
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SOLVAY
Alkalies Chemicals
70 YEARS OF SERVICE
1881 1951

Soda Ash • Chlorine • Sodium Bicarbonate • Caustic Potash • Potassium Carbonate • Calcium Chloride • Ammonium Bicarbonate
Caustic Soda • Specialty Cleansers • Para-dichlorobenzene • Ortho-dichlorobenzene • Monochlorobenzene • Ammonium Chloride
Sodium Nitrite • Nytron
Methanol • Formaldehyde

ONLY ONE

Only FULD makes FULSHINE . . . and only FULSHINE gives you unequalled, unchanging quality! FULSHINE is Alkali-Proof* . . . absolutely neutral and wax-free . . . contains a chemical reserve which maintains a neutrally balanced solution *and actually prevents the freeing of any harmful alkali.* Use FULSHINE without rinsing to produce a beautiful polished effect . . . or rinse for a non-polish finish. Test FULSHINE against any other cleaner you choose and see the results for yourself.

FULD BROTHERS, INCORPORATED

MANUFACTURING CHEMISTS

Warehouses in Principal Cities

CONSISTENT QUALITY FOR OVER A QUARTER CENTURY

702-710 S. WOLFE ST., BALTIMORE 31, MD.

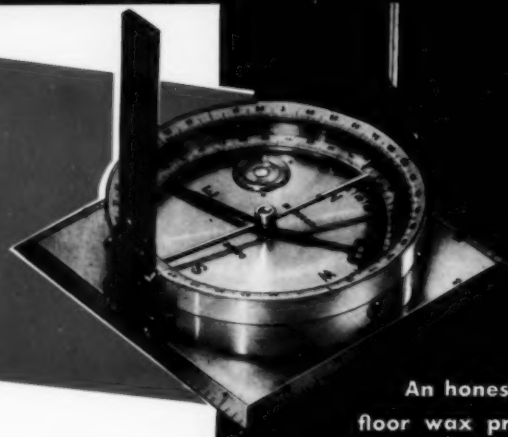
West Coast Plant: Los Angeles, Calif.

*Registered U. S. Pat. Off.

Liquid Soaps, Floor Seals, Floor Treatments, Deodorant Blocks, Liquid Deodorants, Plumbing Specialties, Special Cleaners, Self-Polishing Waxes, Powdered Waxes, Oil Soaps, Liquid Cleaners, Disinfectants, Insecticides, Metal Polishes, Furniture Polishes, Deodorant Block Holders, Soap Dispensers.

A GUIDE

TO WAX PRODUCTS PURCHASING FOR PRIVATE BRAND RESALE



An honest appraisal of floor wax products as we see it is offered to guide wax buyers who want the best quality money can buy...

SELF POLISHING WAXES

Candy's Supreme—Candy's Supreme Special AS
Candy's DeLuxe—Bright Beauty—Candy's Supreme Special WR
Candy's Supreme Special WR-AS—Candy's No. 640
Seven floor waxes that *are* all-around top quality for any given traffic condition. Each imparts the finest protection and beauty to floors for which they are best suited.

Bright Beauty FLOOR CLEANER

An outstanding material for removing even the heaviest wax film and dirt. . . . Brings neglected floors "back to normal." The *right* cleaning agent to insure the most efficient floor maintenance.

Bright Beauty CREAM FURNITURE POLISH

A cream furniture polish that spreads easily, polishes without excessive effort and imparts a deep impressive lustre. Too, it permits *repeated repolishing* with a dry cloth saving reapplication time and again; truly a very economical polish of very highest quality.

Bright Beauty PASTE WAX

A paste wax that is properly blended and refined from excellent quality solids and solvents that produce the best drying time and thorough evaporation. A wax that is easy to handle, having "creamy" consistency and stability throughout its stocking and usage period.

Bright Beauty LIQUID (spirit) PREPARED WAXES

Complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usages. Each its own "Dry Cleaner," they keep a surface waxed with a superb protective coating necessary to many difficult surfaces such as certain floors (where adaptable) bars, wallpaper, etc.

Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH

As a Glass Cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanness to glass that is actually true in fact. Different in color only as Silver polish, it imparts a highly desirable lustre to all silver *without* abrasion and can even correct the abuses of scratchy, "quick-polish" inferior products.

Bright Beauty DANCE FLOOR WAX

Basic advantages are freedom from "balling up," thus does not gather dirt and impregnate the floor with hard spots difficult to remove . . . also is free from dusty effects. Adds the protective quality to expensive ballroom floors that means more "floor-years" to users everywhere.

Bright Beauty Heavy Duty PASTE CLEANER

Really *cleans* and *scours* more effectively and quicker than most scouring powders. Depending on application, it can clean to perfection even painted walls to provide a suitable repainting surface. 100% active, free from excessive abrasive quality, it frees almost every surface from all forms of foreign matter to perfection.

1. BEAUTY AND DURABILITY

should be considered together. Initial appearance is important, but for a waxed surface to remain beautiful it must be durable. Durability depends not only on resistance to the abrasion of traffic, but even more so on resistance to the collection of dirt and to discoloring traffic marks. Durability is really measured by how long the waxed surface maintains a nice appearance before the necessity of complete removal and re-waxing.

2. ANTI SLIP

qualities are necessary in a good wax as a matter of safety underfoot. This important quality does not necessarily require the sacrifice of beauty and protection which are the foremost original reasons for the use of a wax. Look for the proper balance—a wax film which is not excessively slippery yet which is not tacky and does not excessively collect dirt.

3. WATER RESISTANCE

is important, particularly when considering the possibility of wet traffic and the necessity for frequent damp mopping for the purpose of removing surface dirt. Overdoing this quality means greater difficulty in applying multiple coats of wax and may seriously increase the difficulty in removal when complete cleaning and re-waxing is necessary. Water resistance is important, but so is the quality of removability.

4. SOLID CONTENT

when expressed in percentage is not nearly as important as the *quality* of the solid content. When considering good quality, 12% of solids answers most needs for good planned maintenance programs. Two applications of 12% will give better results than one of 18%. However, the more concentrated material is useful for some programs of maintenance and particularly on "washed-out" floors, etc. Over-waxing should be avoided so that periodic complete removal will not be too difficult.

5. CARNAUBA WAX

is still the most important basic ingredient in our floor waxes. When refined and compounded with other important ingredients and "KNOW HOW," it aids materially in producing the most important features of a good floor wax...ALL AROUND QUALITY OF PERFORMANCE.

● **ALL AVAILABLE FOR PRIVATE BRAND ONLY**
We do not compete with our jobbers for consumer sales.
We sell only to distributors, except for experimental accounts in Chicago essential to research.

Wax Specialists for over 60 years

Candy & Company, Inc.

2515 W. 35th ST., CHICAGO

SOAP and SANITARY CHEMICALS

Volume XXVII
Number 8
August 1951

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IT HAS TAKEN YEARS to develop many captivating aromas to fit the increasing demand for perfumery. In order to assist manufacturers in shortening the development period of their new products, NAUGATUCK AROMATICS has been constantly experimenting and developing such aromas for many years and is in a position to supply proven products to fit almost any problem. Why don't *you* consult with NAUGATUCK AROMATICS? You'll find a perfect combination of skill, resources and experience to help you handle your odor problem.

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NAUGAROMES—For various industrial and commercial uses.

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sipon synthetic detergent

You can't buy better lauryl sulphates

FOR DISHWASHING COMPOUNDS

Sipon as the active agent provides strong detergency and high foam without alkalis, is thus very mild on the hands. The cleansing and degreasing properties assure customer satisfaction. The stability of the product and its excellent keeping qualities simplify problems of compounding and distribution.

Write for samples and descriptive literature.

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Magnification of an ULTRAWET SK *bead.*

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Look into

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ULTRAWET SK was developed with the compounder's problems in mind. *One* material to serve *two* purposes.

Its bead form lends itself perfectly to merchandising as *is* in light-duty applications—car wash, dishwashing, etc. ULTRAWET SK comes in regular and high densities to suit the container that you plan to use. Common to *both* densities is the whiteness of the beads—a definite plus value without added cost.

These dedusted and free-flowing beads make ULTRAWET SK ideal for compounding with builders or extenders for heavy-duty cleaners. We'll be glad to send you a bulletin showing the effects of mixing equipment—and the effects of builders—on the densities of the final product.

For technical information and co-operation, write The Atlantic Refining Company, Chemical Products Section, Dept. D-5, 260 S. Broad St., Philadelphia 1, Pa.

SOME OF THE ATLANTIC PETROLEUM CHEMICALS ARE CURRENTLY IN SHORT SUPPLY

Without obligation, please send me further information on ULTRAWET SK.
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*Company*_____

*Address*_____

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NAUGATUCK CHEMICALS . . . Division of Dominion Rubber Co., Ltd.
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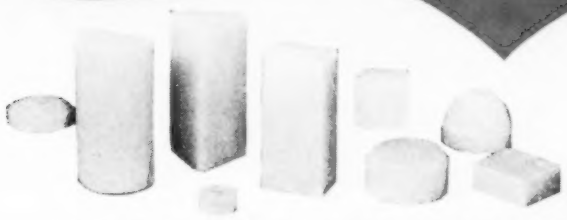
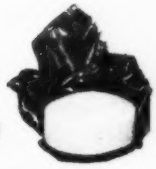


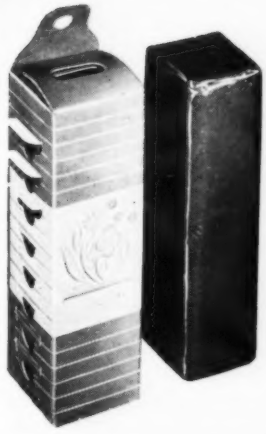
Every type for every purpose!

ULTRA DE LUXE
BLOCETTES



Aire-Con
Bowl Deodorant and Moth Killer
Hang on wall—without removing from container—to kill moths and odors. Remove from container and hang by wire holder over bowl rim to **deodorize.**

Destroys room odors
Hang on any wall!



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Rossville Hexagon® Cologne Spirits... Rossville Algrain Alcohol U. S. P. . . . and Rossville Gold Shield® Alcohol U. S. P. — each of these fine alcohols is the acknowledged standard of quality in its respective fields of usefulness.

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HIGH- WHITE *and handsome!*

because of

Antara® Brightener A

Yes, white fabrics can be washed *"whiter than white"* because of Antara Brightener A. This cotton substantive, optical whitening agent of high activity is added to soaps or detergents. In washing textile fabrics, for which it has high affinity, it makes normally-invisible ultra-violet light visible. Fabrics so treated show increased surface reflectance because of millions of tiny fluorescent "light bulbs" interspersed throughout the material. Even colored fabrics show up brighter because of Antara Brightener A. Antara Brightener A is easily incorporated into soaps and detergents in standard equipment. Commercial laundries employ it in the standard wash cycle.

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Right Combination

to reduce your costs and improve the quality of your products . . .

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ONE OF THE BASIC MANUFACTURERS OF DETERGENTS IN AMERICA

WHY PAY HIGH PRICES FOR ESSENTIAL OILS?

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PERFECT FOR PERFUMING . . .

- LAUNDRY SOAPS
- WASHING POWDERS
- LIQUID CLEANSERS
- POLISHES, ETC.

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- Its high quality never varies, enabling you to manufacture uniformly dependable products.
- Always lower in cost than the natural oils, particularly now with citronella prices on the rise, its use results in production economies and higher profits without lowering quality standards.

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STOCKS CARRIED IN PRINCIPAL CITIES

in harmony...

with your private brands

The octave of PQ Powdered Silicates forms the right combination for your cleaning compounds and detergents. In this group are the unique alkali-soluble silica properties to add distinctive appeal to private brand cleaners. Check the score—

PERFORMANCE— Properly balanced soluble silica component of PQ Silicates steps up cleaning action-quick dirt dissolving, effective soil suspension, protection of the surface, no dirt re-deposit.

COMPATIBILITY— Good free-flowing mixers with other alkalies, soap, rosin, synthetic detergents, complex phosphates.

APPEARANCE— Uniformly attractive, clean, white granules and powders. Same quality, shipment after shipment, insures easy control in your formulas.

PACKING— Available in convenient paper bags, 100 lb. net; fiber drums of approximately 125 and 300 lb. capacity. (Fiber drums can be re-labled and re-used.)

PHILADELPHIA QUARTZ COMPANY
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- G Silicate ($Na_2O.3.22SiO_2$). Hydrated powdered (trisilicate). Rapidly soluble.
- GD Silicate ($Na_2O.2SiO_2$). Hydrated, alkaline powder. pH of 1% solution 11.5.
- SS-C-Pwd. ($Na_2O.2SiO_2$). Anhydrous powder. Dissolves in boiling water.
- SS-C-200-Special ($Na_2O.2SiO_2$). Anhydrous alkaline powder. Slowly soluble.
- Metso Granular ($Na_2SiO_3.5H_2O$). Sodium metasilicate pentahydrate; white granules. Dissolves readily.
- Metso 99 ($Na_3HSiO_4.5H_2O$). Sodium sesquisilicate (U.S. Pat. 2145749). White, granular, free-flowing. Vigorous cleaner.
- Metso 55—metasilicate detergent integrally mfg. with special water-softening and wetting ingredients.
- Metso 66—brown granular, metasilicate compound integrally combined with emulsifying ingredient.

We are holding for your request a copy of Bulletin 17-2 which describes the PQ Dry Soluble Silicates and Metso Silicated Detergents which are of interest to formulators of cleaning compounds.

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KEEP THEM DOWN—AND QUALITY UP—

with Du Pont

SYNTHETIC PERFUME OILS

Try these quality, dependable synthetic oils for replacements of high-priced or hard-to-get *natural* oils.

CANANGA SYNTHETIC 51 — $5.75 per trial lb.*
More economical than Ylang Ylang and Cananga, and faithful to the character of the natural oil. (*Particularly well suited for use in white soap.*)

BERGAMOT SYNTHETIC 50 — $4.75 per trial lb.*
A stable, well-rounded replacement for the natural oil in all soaps and cosmetics.

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New! Improved! Important base for fine oriental perfumes. (*Not for white soap.*)

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VETIVERT SYNTHETIC 51	10.25 " " " *
NEROLI SYNTHETIC 50	8.00 " " " *
HYDROXYCITRONELLAL SUBSTITUTE 4980	3.50 " " " *

*Prices subject to change without notice

For further information on Du Pont's line of fine synthetic oils, or help with any perfume problem, call or write E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Dept., Aromatics Section, Wilmington 98, Delaware. Branch Offices: Atlanta, Boston, Charlotte, Chicago, New York, Philadelphia, Providence, San Francisco.

DU PONT AROMATICS

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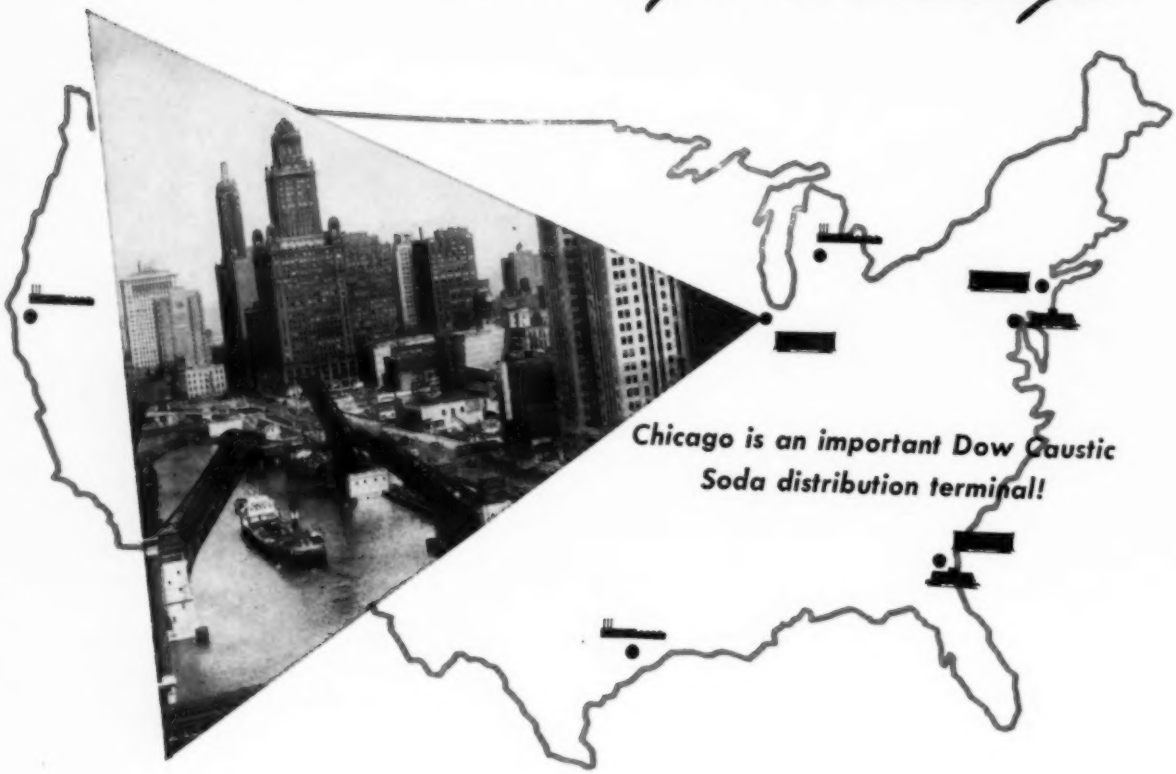
...THROUGH CHEMISTRY

How close are you to Chicago?



Wherever you are located . . . you can be assured of fast, dependable delivery of Dow Caustic Soda! Caustic Soda Solid, Flake and Ground Flake are shipped from terminals in Chicago, Illinois, Port Newark, New Jersey, and Charleston, S. C. Dow maintains Caustic Soda Solution bulk tank distributing terminals in Carteret, New Jersey and Charleston, South Carolina. By ship, rail and barge Dow Caustic Soda production is shipped into these terminals from three large plants—in Michigan, Texas and California. Take advantage of Dow's distribution facilities . . . and receive dependable caustic soda delivery!

wherever you are . . . *you're close to*

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Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle
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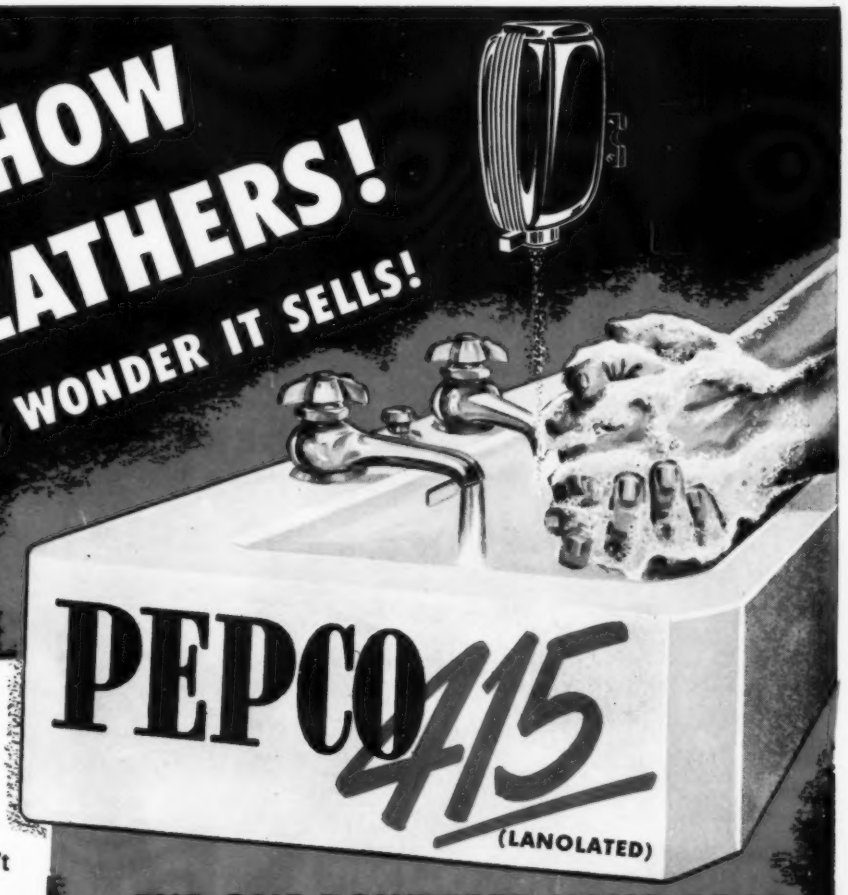
DOW
CHEMICALS
INDISPENSABLE TO INDUSTRY AND AGRICULTURE

LOOK HOW IT LATHERS!

NO WONDER IT SELLS!



- Smooth powder, pleasantly scented
- No rough abrasive, but it sure cuts grease and grime
- Contains lanolin, so it leaves hands feeling soft
- Completely dissolves . . . won't clog drains
- Free flowing . . . won't pack in dispensers

THE ONE POWDERED HAND SOAP FOR BOTH SHOP AND OFFICE USE

We don't believe there's ever been a powdered hand soap that lathers like PEPCO-415. And it's a good heavy lather that wins the grease-and-grime test on dirty shop hands. Our chemists worked months to give this powder real grease-cutting power without the use of irritating abrasives.

Many firms first bought PEPCO-415 for shop use. Soon the office force demanded it. Sales have been doubling up like that for dealers everywhere.

Show customers how PEPCO-415 works up mounds of lather *right now* in hot or cold water . . . how well it cleans . . . how soft it leaves the hands. You make ready sales . . . nice profit.

Offer PEPCO-415 to get more of the powdered hand soap business.

PPC SINCE 1918

Peck's PRODUCTS COMPANY

610 E. CLARENCE, ST. LOUIS 15, MO.

MANUFACTURERS OF SOAPS, DETERGENTS, SANITARY PRODUCTS

MAIL COUPON NOW for generous FREE SAMPLE

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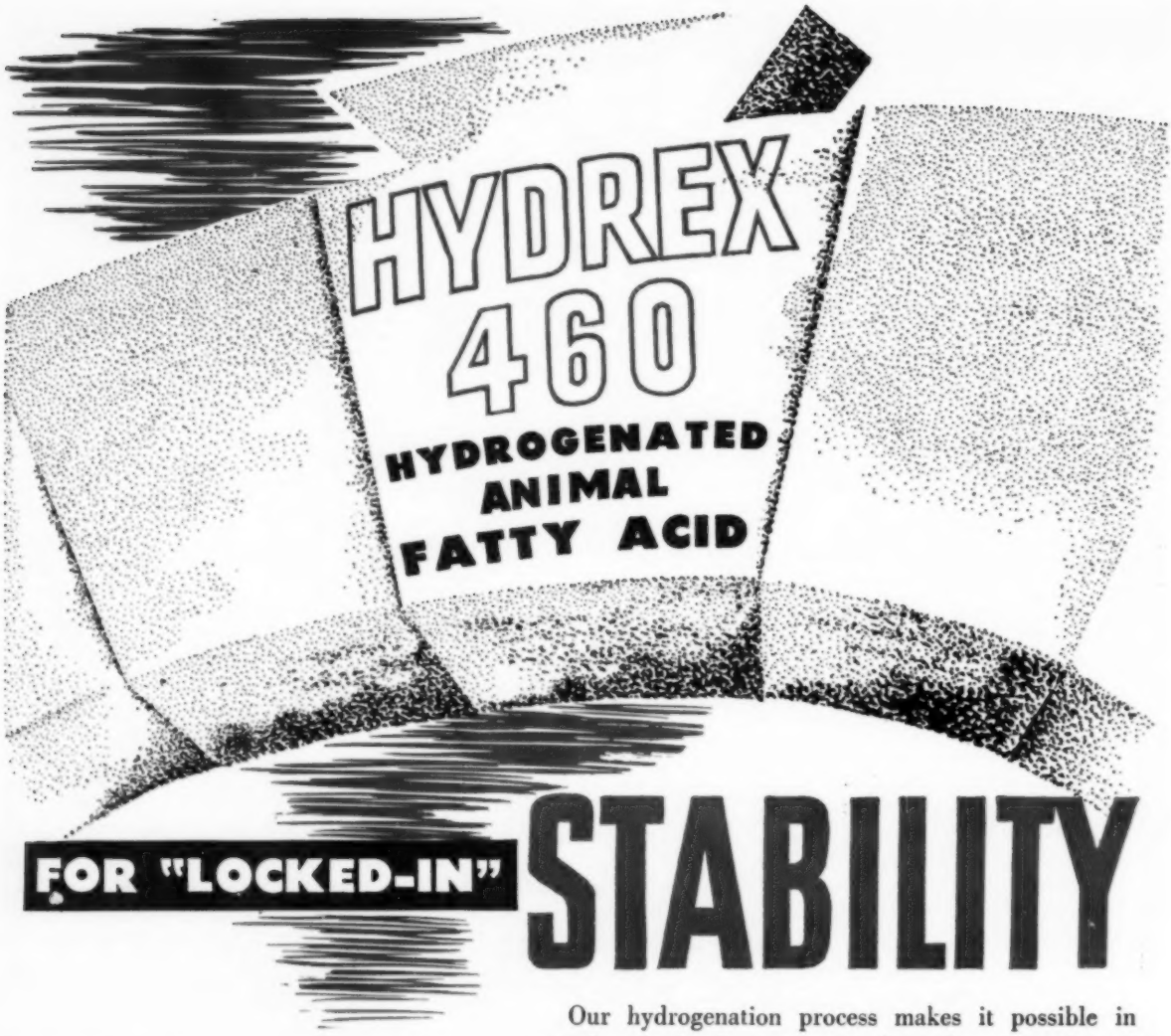
CITY & ZONE_____ STATE_____



FOR "LOCKED-IN" STABILITY

Our hydrogenation process makes it possible in regular production runs to reduce the proportion of unsaturated compounds to a minimum . . . greatly improving the stability of the fatty acid *and the end product.*

For example, Hydrex 460 Hydrogenated Animal Fatty Acid is a water-white, stable, saturated fatty acid that is relatively rich in stearic acid (about 70.0%), with about 30% palmitic acid and practically free of oleic acid. Yes, with our hydrogenation technique we are producing high melting point, low iodine value fatty acids with controlled composition. Manufacturers of fatty acid esters, metallic stearates, special lubricants and other products where *stability* is essential, should investigate medium-priced Hydrex 460 Hydrogenated Animal Fatty Acid.

HYDREX 460 SPECIFICATIONS

Titre	(134.6 — 140.0°F) 57.0 — 60.0°C
Color 5¼" Lovibond Column (max)	4 Yellow — 0.4 Red
Iodine Value (Wijs).	1 — 4
Free Fatty Acid (as oleic)	100 — 103%
Acid Number	199 — 205
Saponification Value.	201 — 207

W. C. HARDESTY CO., INC.
HARDESTY PRODUCTS ARE INDUSTRY'S KEYSTONE
ESTABLISHED 1926
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Half container . . . half salesman. Maryland Blue Glass acts as a powerful advertising, merchandising and selling tool for your product . . . in stores or in the home. Blue is easier to see . . . easier to remember. Blue gives your product the quality and distinction that says, "Buy Me!" So follow the lead of many famous brands . . . pack to attract in Maryland Blue Glass. Write today for samples. MARYLAND GLASS CORPORATION, BALTIMORE 30, MARYLAND.

PACK TO ATTRACT IN

Maryland Blue

Also available in Clear Glass

PINE OIL

for soaps, cleaning compounds, disinfectants

SMELLS CLEAN . . . CLEANS CLEAN

HERCULES POWDER COMPANY Naval Stores Dept., 961 Market St., Wilmington, Del.

NC51-2

Cut yourself a slice of...

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...says Mr. fatty acid

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COCONUT Double-Distilled		X				X		X		X	
LINSEED											
Water White	X	X	X								
Regular	X	X	X	X	X	X		X			
SM-500	X	X	X	X	X	X		X			
SM-600	X	X	X	X	X	X		X			
Essential Unsaturated Free Fatty Acids											X
SOYA											
Water White	X	X	X								
Regular	X	X	X		X	X		X			
RO-4	X	X	X		X	X		X			
RO-10	X	X	X	X	X	X	X	X	X		
RO-11S	X	X	X		X			X			
MIXED VEGETABLE RO-8	X	X		X	X	X	X	X	X		
CORN-SOYA Double-Distilled				X		X	X	X	X		
CORN Double-Distilled				X		X	X	X	X		
COTTONSEED Double-Distilled		X			X		X	X	X		
CHINAWOOD	X	X	X								

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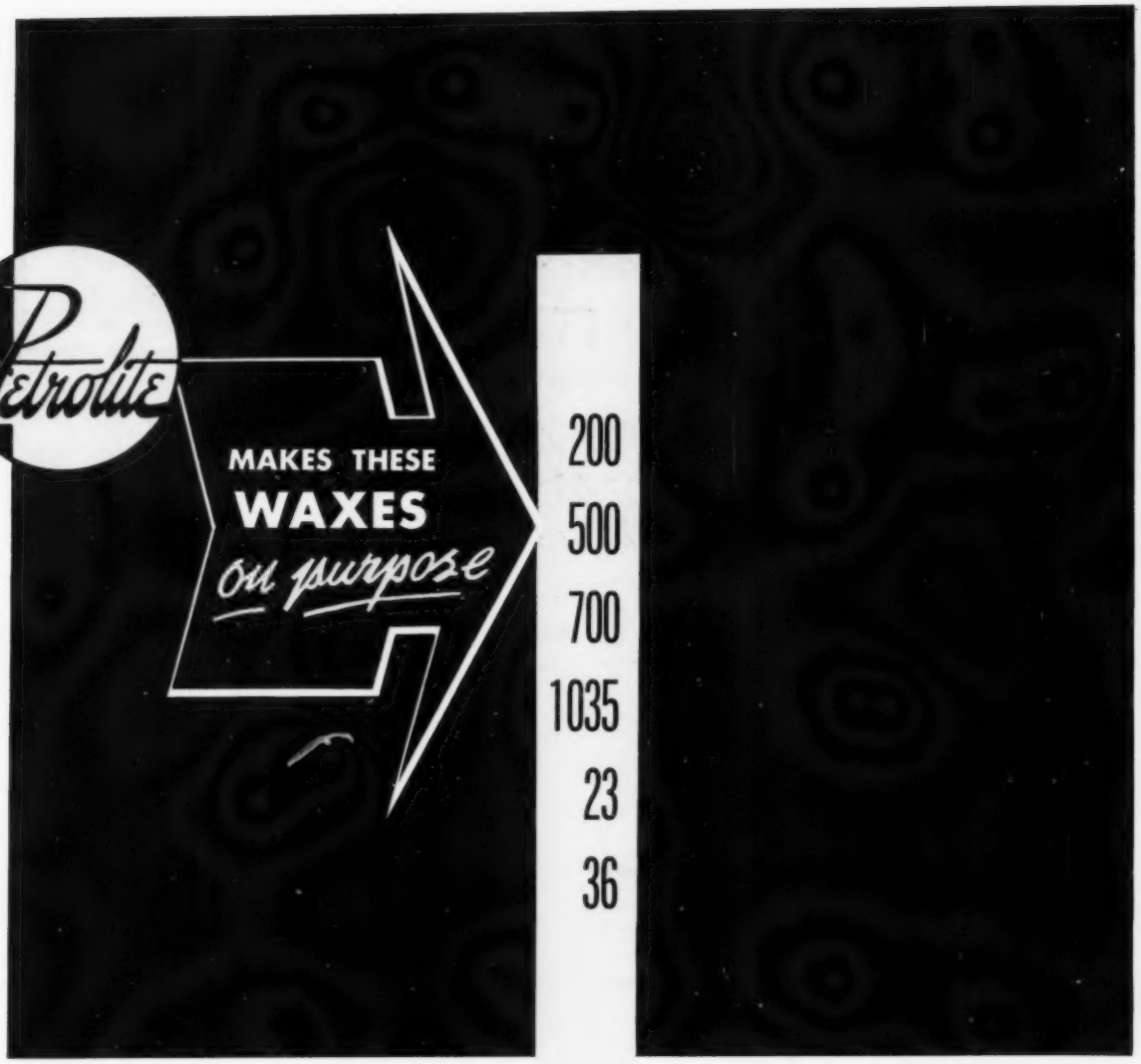

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SPECIFICATIONS

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500	190/195	10 max.	2 to 2½	Nil	Nil
700	190/195	5 max.	2 to 2½	Nil	Nil
1035	195/200	2 max.	2 to 2½	Nil	Nil
***23**	180 min.	4 to 6	4 to 5	20-25	55-65
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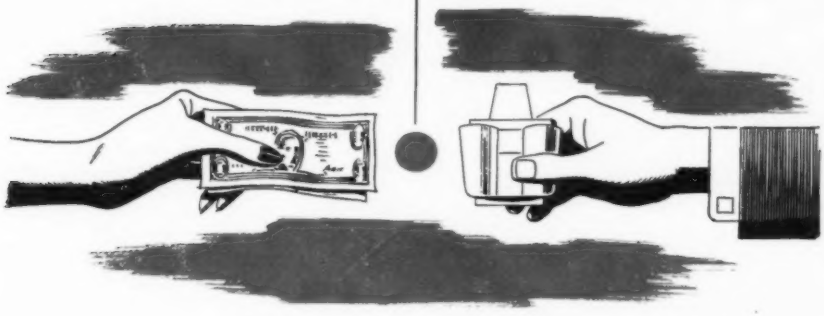

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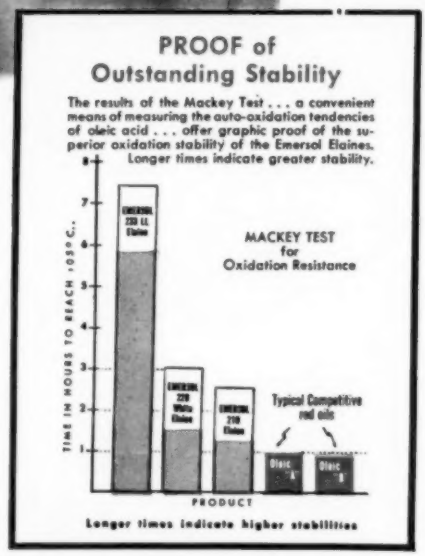
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AS THE EDITOR SEES IT

CONSUMPTION of soaps and detergents during 1950 was probably at the peak level of the past thirty years. Department of Agriculture figures reporting the "disappearance" of detergents and soaps into consuming channels show a total of thirty pounds per capita. Of this, eight pounds represent synthetic detergents, the single highest figure yet reached for these products, and twenty-two pounds represent soaps. In short, over 25 per cent of all washing products sold in 1950 were synthetics, a figure which fits quite accurately into the picture based on market estimates made last year. At the same time, the report indicates that the trend in soap use has shown a declining tendency for the past ten years.

A study of the USDA figures since 1921 also brings up some rather puzzling questions. For example, it shows a per capita soap "disappearance" of 34 pounds for 1941 and 1944. Of course, these were war years, and in the latter instance included a half-billion pounds of soap for the military and synthetic rubber. How much of the material actually was consumed in those years and how much was carried over, we do not know. Our guess is that considerable soap was in storage as the years ended. A notable drop in "disappearance" for the succeeding two years in each instance would indicate this.

Now, as for the more recent figures of 1950, we would like to believe that the 4,700,000,000 pound total of soaps and detergents represented actual consumption and not just "disappearance" into consuming channels. But, we and everybody else know otherwise. A big wad of soap and detergents was carried over into 1951 in the channels of distribution. That they will mean a drop in the 1951 USDA "disappearance" figure down to 26 or 27 pounds per capita, we have no doubt. In fact, actual American consumption this year will probably exceed production and sales by two or three pounds per capita.

As a guide to soap and detergent use in the U. S., we believe that on a long-range basis the USDA figures give an enlightening and by far the most accurate picture of any statistics on the subject. But, to compare them one year to the next, they could mislead the unwary due to variations in surrounding circumstances. If it be a figure of actual consumption which we seek, we feel that it must be based on an average of estimates among those who have studied the subject over the years. On this latter, we qualify since 1920. From a figure of approximately twenty pounds per capita in 1920, we estimate that with the exception of the ground lost durnig the 1930-35 depression period, the trend has been steadily upward to a current figure of about twenty-eight pounds. We also believe that the evidence indicates that the long-range trend of consumption is still upward and will continue so indefinitely.

PROCUREMENT of soap for the armed forces sometimes gives soapers the jitters. The soap manufacturers contend that if they could supply this material to government agencies on a quarterly basis or when their plants are not too busy, such as right now, the job would be greatly simplified. As we understand it, no more GI soap is to be bought until next January and then the quantity will be five or six million pounds. This is a lot of soap to come in one lump, whereas if it were spread over the next four or five months, its production would be simplified and less disturbance of civilian requirements would result.

The personnel who buy soap for the armed services are not at fault. As far as we can find out, the orders come from higher up and must be executed when sent through. Maybe government

finances may complicate the problem. Nevertheless, these government buyers who are in direct contact with the industry know the full score, they know soap, who makes it and how much.

That they could buy to greater advantage for the government and at considerably less inconvenience to the soap industry if given a freer hand, we have no doubt. Right now, soap could probably be bought to advantage, an advantage which may not exist next January. And no soaper can make up government specification soaps in advance in anticipation of an order he may never get.

Accordingly, we believe a re-timing of the call for soap bids, more frequent bids for smaller quantities might be helpful all around.

TODAY, the soap industry is paying for its "Bacchanalian sales orgy" of last summer and fall when salesmen loaded customers to the hilt in anticipation of higher prices and possibly acute shortages. This and a lot more pungent comment by a representative of a leading soaper on the present condition of soap demand and sales summed up his views on how bad things are in the soap business at present.

And just how bad are they? "When companies give away a free item with a 23 cent sale, then you have some idea of how deflated soap sales are at the moment," this soaper stated. Also, he claimed that there have been more gimmicks passed out to soap purchasers during the past two months than in any comparable period in the history of the industry.

Not unlike a number of industries right now, the soap business is experiencing an "economic hangover," this soaper maintains, the aftermath of the aforementioned Bacchanalian orgy. But to sell soap in the face of an absent demand from its overloaded customers, the industry has turned itself into a "three-ring circus," replete with all sorts of gimmicks, he concludes.

That lower prices as recently announced gradually will help to bring soap sales out of the doldrums, we have no doubt. But, the scarcity fear has vanished, and consequently the tendency is to work large inventories down to a normal level. In the meantime, soap sales by manufacturers are down in spite of pressure from the top brass. Any fear of a drop in soap or detergent consumption is foolish. Actually, it is still rising. But, we sold everybody just a little too much stuff last year,—and must wait until more of it is used up. It's as simple as that.

THAT synthetic detergents are the chief cause of foaming at sewage disposal plants is as yet not an established fact. Other causes may in part or in whole contribute to this nuisance. No definite relationship between foaming and the use of anionic detergents, or any other detergent for that matter, actually has been established.

There is a possibility that the pH of sewage waters may be an important factor. Or the greatly expanded use of polyphosphates in soap powders and water softeners over the past few years might enter into the picture. At any rate, a great deal more research will be necessary before the real cause of sewage foaming is pinned down and a solution worked out.

This in essence is the experts' reply to an editorial which appeared here last month. Two leading synthetic detergent authorities took us to task in a mild way for our assumption that the new and wider use of such detergents is in fact the main cause of excessive foaming at sewage plants of more or less recent development. They point to the Cleveland conference on this subject last month and to the conclusions that studies of the subject were as yet very incomplete and no sound conclusions could be drawn until such investigations are further along.

Consequently, we hasten to set down these facts and admit the error of jumping to conclusions unwarranted by the evidence. Obviously, the problem is so new that a great deal more research is needed. When such data are available, we hope to be able to publish the full facts. Although the problem today is in the nuisance class, conceivably it could become more serious and eventually be of much concern to all manufacturers and marketers of synthetics.

Fats and Oils Market '51 '52

GOVERNMENT price ceilings imposed earlier this year on certain domestic fats and oils are currently quite meaningless. The price trend for the past three months has been steadily downward, and fats and oils are now selling well below ceilings. Declining quotations on fats and oils have been promptly reflected in lower prices for finished soaps. Leading soap manufacturers, on July 17th announced wholesale price reductions, which in terms of retail products mean a cut of one cent on a box of soap powder.

sharp contrast to conditions during World War II. Soapmakers recall far too vividly the fat and oil quotas, non-availability of high lauric acid oils, forced recovery of glycerine, forced use of rosin, collection of and payment for waste household grease, and eventual rationing of soap and glycerine. It is no wonder, then that intensified hostilities in Korea last fall caused a sharp, though temporary, advance in fats and oils prices, with both buyers and manufacturers of soap speculating on the possibility of a recurrence of the World War II restrictions.

The current outlook, up to this point, however, gives no indication that there will be any such repetition of the situation in World War II.

For the most part, fat and oil prices were at the bottom of the 1945-'50 price scale and going lower in January, 1950, although still somewhat higher than pre-World War II levels. Tallow averaged 6 cents a pound, coconut oil 14.5 cents, cottonseed oil 11 cents, corn oil 13.5 cents, soybean oil 12.5 cents, peanut oil 14.25 cents, and copra was bringing

Price Trends of Fats and Oils Used in Soap*

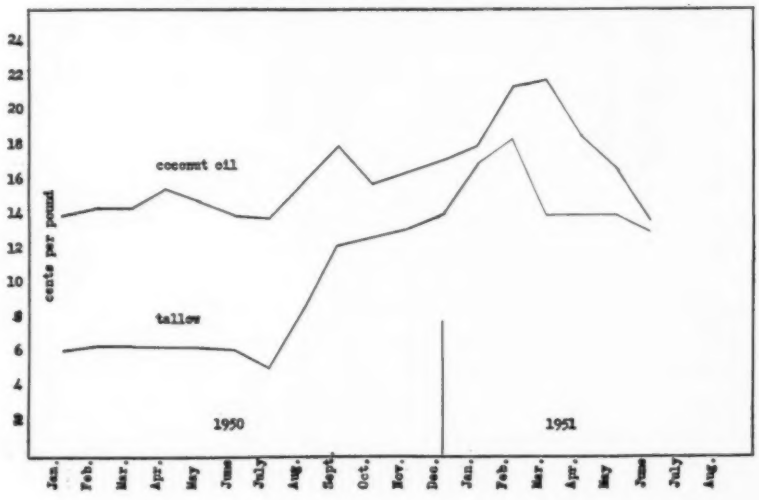
	1939		1942		1945		1946		1947		1948		1949	
	High	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*
Tallow	7[1]	4⅜	9.71	8⅝	8⅝	8⅝	11¾	8⅝	26¾	11¾	26¾	11	10¼	5
Coconut oil	4⅝	2½	9½	8.35	8.35	8.35	23	8.35	26	11	27	19	17¾	12½
Soybean oil	6½	4½	12½	11¾	11¾	11¾	25	11¾	34	15¼	29	16½	15½	9
Palm oil	5	3⅝	9¼	9	8.65	8.65	8.65	8.65	no stock		29	22½	22	11.1
Lard	8¾	5¾	13 4/5	10½	13.8	13.8	37	13.8	32	16⅝	26½	16¾	16.1	8½

* Figures obtained from the *Oil, Paint and Drug Record of Prices.* [1] Prices in cents per pound.

Factors contributing to the general price decline on soap making fats and oils include the following: (1) there has been no interference with the supply of imported oils by the Korean war, (2) our domestic cattle population is high, providing adequate grease and tallow supplies, (3) continued high rate of production of vegetable oils, (4) Europe has recovered sufficiently to supply a substantial amount of its own fats and oils needs, and (5) the declining soap output stemming from increased acceptance of synthetic detergents reduces the strain on the fat and oil market.

The present situation is in

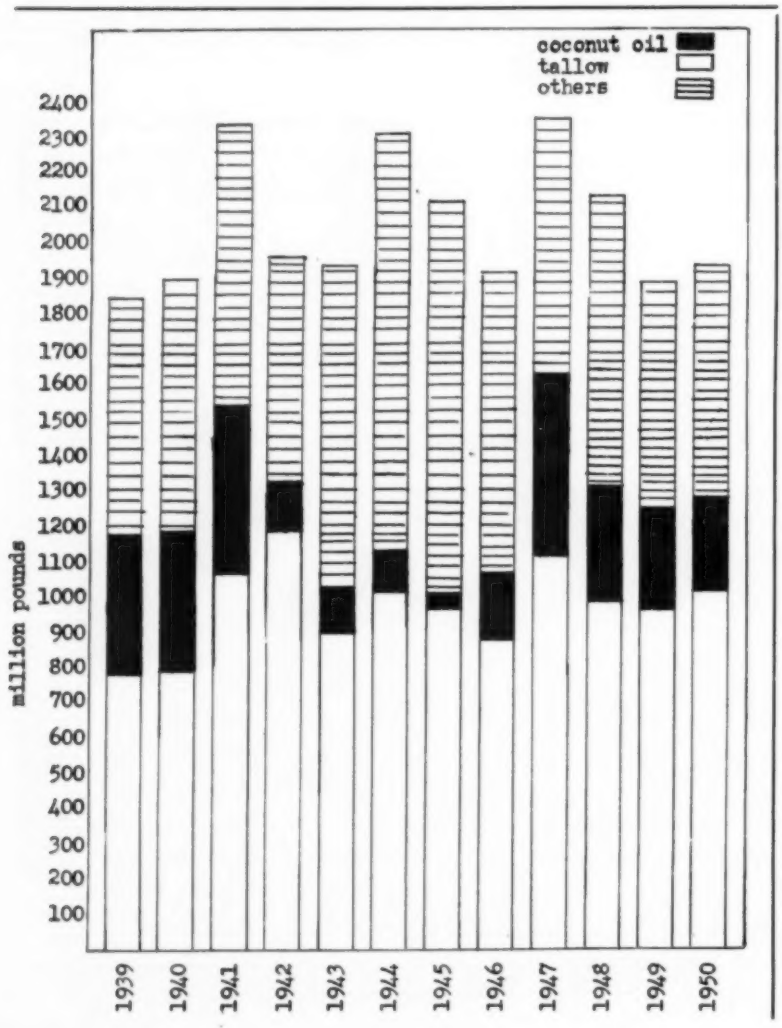
Tallow, Coconut Oil Prices . . . '50-'51



$192 per ton at West Coast ports. The unfavorable turn of events for U.N. forces in Korea in the fall of 1950 strengthened the fat and oil market, and prices began a steady rise, which extended into 1951. They were halted in the spring of this year by the joint effects of price ceilings and reduced demand by soapers. In December 1950, tallow sold at 14 cents a pound, coconut oil was 17.25 cents, soybean and peanut oil were 18¼ and 22½ cents a pound, respectively. By February 1951, tallow had risen to 18½ cents, coconut oil was 21½ cents a pound, soybean and peanut oil were 15¼ and 17¼ cents, respectively. Price ceilings were imposed necessarily to halt the increase, rolling prices of domestic fats and oils back to the December 1950 levels, which were the high for 1950.

At the same time trading fell to very low levels in the spring of 1951 as soap sales fell and buyers worked off inventories, in resistance to high prices. Trading in coconut oil through May was particularly limited, caused in part by heavy stocks and price ceilings on soap, sales of which dropped sharply. Spotty sales through March were at ceiling prices, while light sales in June found prices about one cent lower. By mid-July, tallow sold at 9½ cents a pound, which is five cents below the ceiling price, cottonseed was reported at 14¼ cents, coconut oil at 12, peanut oil at 15½ and soybean at 14⅝ cents a pound.

Fat and Oil Consumption by Soap Industry



Prices Boost Tallow Use

LOWER prices for grease and tallow, as compared with other fats and oils available for the soap kettle over the past few years, have been reflected in increased use of these fats. Whereas tallow and grease averaged 50 per cent of the total saponifiable for soap in 1937-1941, use increased to 71 per cent total saponifiable in 1950.

Production of these fats has increased steadily since the last war, but consumption has not kept pace with the increase. Apparent production in 1947-'49 was 74 per cent more than the '37-'41 average. Factory consumption increased only 52 per cent in the same period, and total saponifiable used in the soap industry increased only ten per cent over its prewar average. In this period the export market was the largest outlet for inedible tallow and grease, aside from the domestic soap industry.

However, in the nine-month period, starting July 1950 to March 1951, production of tallow and grease increased by 11 per cent over the '47-'49 average. In this same period, net exports of these fats were at an annual rate equivalent to 572 million pounds, almost three times the '47-'49 average. The increased export demand for these tallows and greases resulted in a reduction in stocks, despite heavy output. On April 1, 1951, stocks of inedible tallow and greases totaled 251 million pounds, the lowest for that date since 1947.

The tallow situation threw a scare into soapers early this summer as cattle raisers threatened to halt the flow of cattle to the Chicago slaughterhouses, in rebellion against a 4½ cent rollback in beef prices this May. However, a more careful analysis of the situation discloses that the best time to sell cattle is when they are ready for slaughter. Once they reach this stage it is economically unsound to pile up extra costs on the ranches feeding them. Thus, though there may be a

(*Continued on Page 67*)

Detergency Properties of Systems Containing A

Solid Nonionic Detergent

By H. R. Suter and M. G. Kramer*
Wyandotte Chemicals Corp.

BECAUSE of the versatility and excellent compatibility characteristics of nonionic detergents their incorporation in formulations designed for cleaning applications is of prime interest. This laboratory, along with others, has found ample proof of their efficacy, particularly in the washing of cotton fabrics. Until very recently, the use of appreciable percentages of such detergents has been restricted because of the pasty and moist-physical condition of the compositions, resulting from the liquid nature of the nonionic detergents available.

Within the past year a solid nonionic detergent has been developed in flake form, which permits incorporation in unlimited proportions into blended compounds without sacrifice of desirable physical characteristics. This solid detergent has been named "Pluronic F68"** and its physical and detergency properties, along with those of various liquid nonionic detergents of similar types, have been described (1), (2).

Briefly, the flake form nonionic is a member of a series of detergents ranging from liquids to hard solids which are prepared by employing a new type of hydrophobic unit in conjunction with a hydrophilic unit derived from ethylene oxide. The melting point of Pluronic F68 is 51-54°C. which permits flaking to produce a free flowing dustless product. The flaked product is relatively non-hygroscopic and contains 100% active agent. It is miscible with water in all proportions and increases in wetting ability with increase in temperature. Under normal use conditions it may be considered to be non-foaming.

Among major interests in the detergent field is the washing of cotton fabrics both in the home and in commercial laundries. For this application certain advantages would appear to be inherent in the use of nonionic-anionic detergent mixtures particularly in hard water and when promoted with sodium carboxymethyl cellulose. For example, Barker (3) has concluded from studies involving soil redeposition tests that nonionic detergents enhance the detergency of many anionics and in particular the alkyl aryl sulfonates when employed for washing cotton fabric in any type of water. Certain types of soils are deterged more effectively by the nonionic than by the anionic detergent and vice versa. Also, the combination permits control of suds volume which is of importance particularly in cylinder-type household washers.

In order to assist in the intelligent compounding of a synthetic organic detergent base comprising a solid nonionic detergent-anionic detergent-sodium carboxymethyl cellulose combination, fundamental information has been obtained concerning the cotton detergency properties of this system. The effect of building such a base material with sodium tripolyphosphate and soda ash has been determined and concentration-detergency curves for a completely built composition based on these data have been obtained. Values are compared with those similarly obtained using detergents having proved performance records.

The effectiveness of a detergent for the washing of cotton or other fabrics depends both upon its ability to remove soil and to keep the soil from redepositing. These properties have been measured by means of carbon soil removal and whiteness retention tests, respectively. The principles of these test procedures have been described (4). The type of soiled fabric, reference standards, etc., were the same as reported in a previous paper on nonionic detergents (1). The solid nonionic detergent used in this work has been described above. The anionic detergent was "Kreelon 4D,"† a commercially available alkyl aryl sulfonate containing 40% active agent. The sodium carboxymethyl cellulose (CMC) was "Carbose D"† and the sodium tripolyphosphate and soda ash were commercially produced technical grades. The tests were made at 0.25% total concentration at 140°F. and the data are expressed on a relative basis, being referred to a standard alkyl aryl sulfonate reference detergent which has an arbitrarily assigned value of 100 for both soil removal and whiteness retention when tested in distilled water. The tests were made in both distilled water and water of 15 grains per gallon hardness in order to determine

* Before 37th Midyear Meeting, Chemical Specialties Manufacturers Assn., Chicago, April 30, 1951.

** Registered trade name of Wyandotte Chemicals Corporation, Wyandotte, Mich.

† Registered trade name of Wyandotte Chemicals Corporation, Wyandotte, Mich.

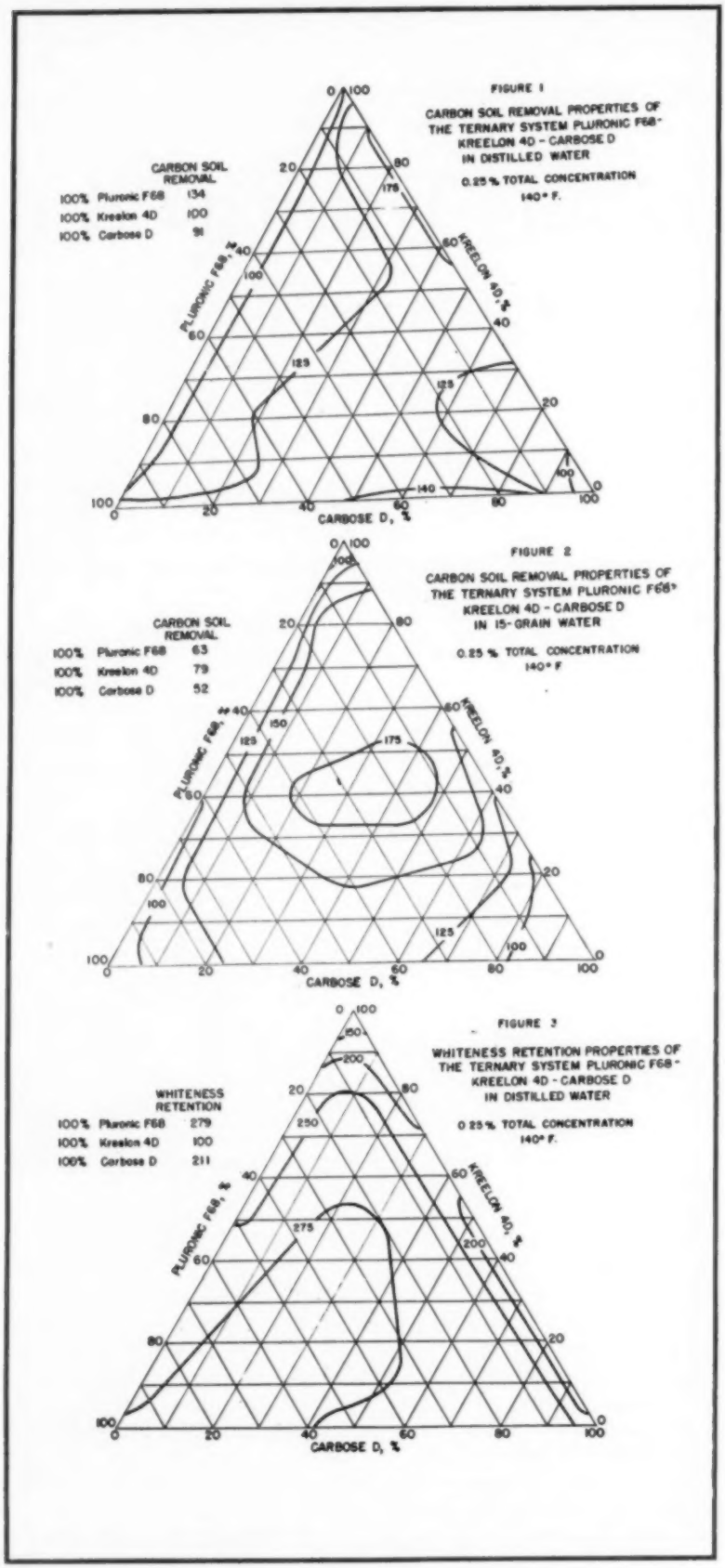


FIGURE 1
CARBON SOIL REMOVAL PROPERTIES OF THE TERNARY SYSTEM PLURONIC F68 - KREELON 4D - CARBOSE D IN DISTILLED WATER
0.25 % TOTAL CONCENTRATION
140° F.
CARBON SOIL REMOVAL
100% Pluronic F68 134
100% Kreelon 4D 100
100% Carbose D 91
PLURONIC F68, %
KREELON 4D, %
CARBOSE D, %
FIGURE 2
CARBON SOIL REMOVAL PROPERTIES OF THE TERNARY SYSTEM PLURONIC F68 - KREELON 4D - CARBOSE D IN 15-GRAIN WATER
0.25 % TOTAL CONCENTRATION
140° F
CARBON SOIL REMOVAL
100% Pluronic F68 63
100% Kreelon 4D 79
100% Carbose D 52
PLURONIC F68, %
KREELON 4D, %
CARBOSE D, %
FIGURE 3
WHITENESS RETENTION PROPERTIES OF THE TERNARY SYSTEM PLURONIC F68 - KREELON 4D - CARBOSE D IN DISTILLED WATER
0.25 % TOTAL CONCENTRATION
140° F.
WHITENESS RETENTION
100% Pluronic F68 279
100% Kreelon 4D 100
100% Carbose D 211
PLURONIC F68, %
KREELON 4D, %
CARBOSE D, %

variations to be expected from various water sources.

Synergistic Effects Noted

IN MANY studies of this nature results are obtained with combinations of materials which were unexpected from a consideration of their individual values. Rigorously, the term synergism applies to effects whereby the value for a combination of materials is greater than the sum of values for all its ingredients when each is tested at the concentration at which it was used in the combination. Presentation of such data is cumbersome. For ease of exposition, the term synergism will be used here to denote effects whereby the value for a combination of materials is greater than obtained with any of the individual components when tested at the same total concentration.

The carbon soil removal properties for the solid nonionic detergent-anionic detergent-sodium carboxymethyl cellulose system in distilled water are shown in Figure 1. Antagonistic carbon soil removal effects occur in the binary nonionic-anionic system. Our investigation has shown that this antagonistic effect is gradually reduced with increase in water hardness until definite synergism occurs in water of 15-grain hardness as will be shown later. A slight synergistic carbon soil removal effect is obtained with the solid nonionic-CMC combination, but only at CMC concentrations between about 40 to 90%. Much greater carbon soil removal synergistic effects were obtained with alkyl aryl sulfonate-CMC mixtures in distilled water and in hard water as will be noted in Figure 2. In the ternary system in distilled water, carbon soil removal improves with increase in CMC content except at high CMC concentrations, and the effect is quite pronounced in the vicinity of the anionic apex. Except at high CMC concentrations, the addition of solid nonionic reduces the carbon soil removal level and maximum values are obtained in its absence.

The carbon soil removal properties of this system in hard water are

shown in Figure 2. Synergistic carbon soil removal effects are obtained with nonionic-anionic mixtures as mentioned above. Although not shown in the figure, maximum synergism is obtained between approximately 65 and 85% of anionic detergent. The addition of CMC to the solid nonionic results in a pronounced increase in carbon soil removal properties with a maximum level of about 130% at approximately 25 to 55% CMC. In the ternary system, carbon soil removal improves with increase in CMC content to a maximum level of 175% within the approximate boundaries of 8-43% nonionic, 33-53% anionic, 17-48% CMC. The level within this area is approximately the same as that obtained with a high titre soap in distilled water and is greater than obtained with binary anionic-CMC systems in hard water. It is apparent, therefore, that the incorporation of the solid nonionic in the ternary system under study results in a marked increase in soil removal properties. Accordingly, nonionic-anionic-CMC mixtures from a soil removal standpoint offer considerable promise as hard water detergents.

Whiteness Retention

FIGURE 3 shows the whiteness retention properties of solid nonionic-anionic-CMC mixtures in distilled water. "Pluronic F68" has a very high whiteness retention value, 279%. As anionic agent is added to the nonionic, the whiteness retention values decrease. A relatively high level is maintained, however, through most of the system due to the inherently high whiteness retention properties of nonionic detergents even at very low concentrations. CMC has no promoting effect on the whiteness retention properties of the nonionic but addition of CMC to alkyl aryl sulfonate results in an increase in whiteness retention to a maximum level of 200 at about 25% of "Carbose D." In the ternary system, whiteness retention properties increase with the addition of "Carbose D" to a maximum level of 275% and then decrease with further increase in CMC. This whiteness

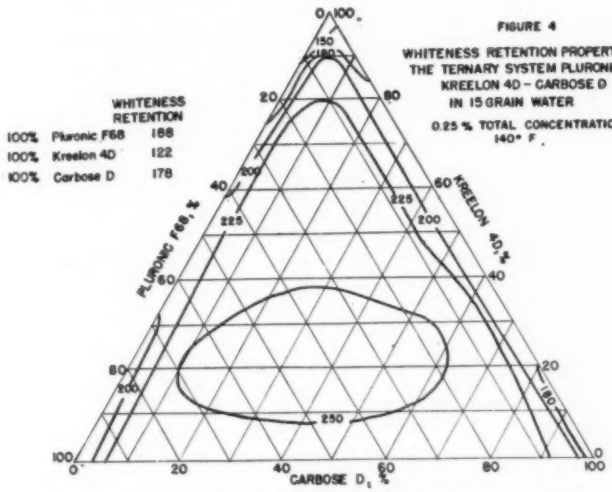


FIGURE 4
WHITENESS RETENTION PROPERTIES OF THE TERNARY SYSTEM PLURONIC F68 - KREELON 4D - CARBOSE D IN 15 GRAIN WATER
0.25 % TOTAL CONCENTRATION 140° F.

FIGURE 5 - EFFECT OF CONCENTRATION ON CARBON SOIL REMOVAL PROPERTIES OF BUILT ORGANIC DETERGENT BASE. 30% ORGANIC DETERGENT BASE. (40% PLURONIC F68 - 40% KREELON 4D - 20% CARBOSE D) + 45% SODIUM TRIPOLYPHOSPHATE + 25% SODA ASH.
0.25% TOTAL CONCENTRATION, 140° F.

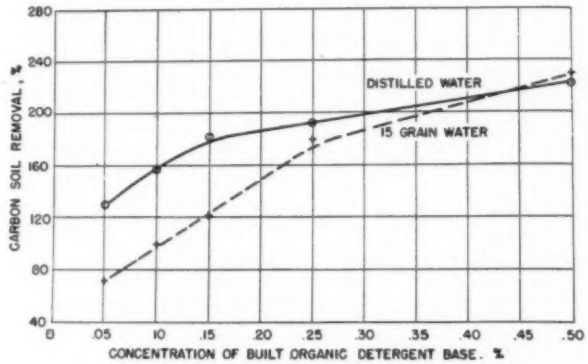
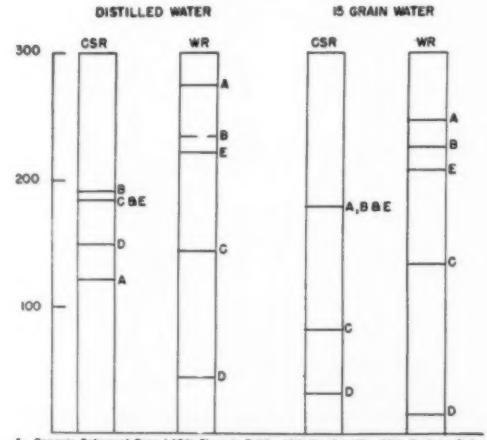


FIGURE 6 RELATIVE DETERGENCY VALUES OF VARIOUS DETERGENTS
0.25% TOTAL CONCENTRATION, 140° F.


DISTILLED WATER
15 GRAIN WATER
CSR
WR
A. Organic Detergent Base (40% Pluronic F-68, 40% Kreelon 4D, 20% Carbose D.)
B. Built Organic Detergent Base (30% A, 45% STPP, 25% Soda Ash.)
C. High Titer Tallow Soap.
D. Built High Titer Tallow Soap (1 Part Soap, 15 Parts Soda Ash.)
E. Proprietary Household Laundry Detergent

retention level is essentially the same as that obtained with "Pluronic F68" alone and is reached within the approximate limits of 20-100% nonionic, 0-53% anionic, 0-53% CMC. The fact that in soft water a high titre soap tested under these conditions gives a whiteness retention level of about 145% indicates that excellent whiteness retention may be obtained in this system with relatively small amounts of CMC. For example, the composition consisting of 17% nonionic, 78% anionic and 5% CMC provides a whiteness retention value of 250%. Contrary to soil removal considerations noted above a definite benefit is derived from incorporating a nonionic detergent in an alkyl aryl sulfonate-CMC system so far as whiteness retention properties in soft water are concerned.

Whiteness retention properties of this ternary system in water of 15-grain hardness are shown in Figure 4. Definite synergism occurs in the three binary combinations involved, that is, combinations of two components have values greater than values for either when tested individually at the same total concentration. The addition of CMC to nonionic-anionic mixtures results in an increase in whiteness retention to a maximum of 250%, within the approximate boundaries of 16-72% nonionic, 8-38% anionic and 10-63% "Carbose D." These tests in hard water indicate that this nonionic-anionic-CMC combination possesses whiteness retention properties considerably greater than can be obtained using "Carbose D" in binary mixtures with the nonionic or anionic detergent. It is evident that the use of this solid nonionic with an anionic detergent and CMC offers considerable advantage in both carbon soil removal and whiteness retention properties when used as a detergent for cotton in hard water.

Having obtained fundamental information concerning the detergency properties of this system, the data may be used in the selection of a free flowing organic detergent base for further study. This base could well be considered for use in conjunction with builders in the conventional manner for commercial laundering, or for use in a typical built detergent. As an illustration of how this base material may be used in the development of a completely built detergent, a basic composition has been selected which falls within the area of maximum carbon soil removal in hard water, which point is coincidental with maximum whiteness retention properties in both distilled and hard water. The selected mixture consists of 40% "Pluronic F68," 40% "Kreelon 4D," 20% "Carbose D." Preliminary work had indicated both sodium tripolyphosphate and soda ash to be very effective builders for "Pluronic F68." Accordingly, a study was made of the "ternary" system comprising the organic detergent base selected above, sodium tripolyphosphate and soda ash.

Tests in hard water indicated that a minimum sodium tripolyphosphate content of 43% is required to maintain the 180% carbon soil removal level of the organic detergent base when used in conjunction with soda ash. This level is obtained within the approximate composition limits of 15 to 33% detergent base, 43 to 65% sodium tripolyphosphate and 13 to 32% soda ash. Within these limits, whiteness retention levels are above 215%.

From this area a composition consisting of 30% organic detergent base (40% "Pluronic F68"-40% "Kreelon 4D"-20% "Carbose D"), 45% sodium tripolyphosphate and 25% soda ash was selected as an example of a formulation having adequate cotton detergency properties in hard water.

The effect of concentration on the detergency properties of this composition was studied in both distilled and hard water over a range to include typical use concentrations. Whiteness retention values were 200% or greater at all concentrations above 0.05%. Results of carbon soil removal tests in distilled and 15-grain water are given in Figure 5. It will be noted that the poor carbon soil removal properties previously shown for the solid nonionic-anionic-CMC combination in distilled water are greatly improved by the addition of sodium tripolyphosphate and soda ash. Thus, although the organic detergent base itself would be expected to have adequate soil removal properties only in hard water, it is, with proper building, very effective in both soft and hard water. Although not yet investigated thoroughly, the carbon soil removal effects in distilled water coincident with the use of builders may be similar to those obtained in the presence of hard water. At least in both cases the apparent antagonistic effect between nonionics and anionics disappears.

A measure of the relative effectiveness of the selected formulation based upon the solid nonionic may be obtained by comparison with values for materials with a proven performance history. Such a comparison is made in Figure 6.

The relative rating of detergents might vary somewhat under different test conditions. However, using the performance of either soap or built soap as a basis for comparison it is apparent that the organic detergent base alone or in the presence of builders possesses detergency properties which offer considerable promise for the washing of cotton. The built organic detergent base containing the solid nonionic also compares favorably by these tests with a product which has gained wide acceptance in the household laundry field.

Final selection of a composition is, of course, dependent on specific use requirements and several other factors. The compositions selected here were chosen to illustrate generally the detergency characteristics of free flowing compositions containing a solid nonionic together with an anionic detergent.

Conclusions

1. Laboratory detergency tests indicate that mixtures selected from the ternary system comprising "Pluronic F68"-"Kreelon 4D"-"Carbose D" are particularly suitable for hard water detergency.
2. The detergency data for this system containing a solid nonionic detergent permits selection of a free flowing organic detergent base composition which is suitable for

(*Turn to Page* 149)

Detergent Sanitizers

By Milton A. Lesser

RECENT years have witnessed a tremendous growth of interest in the detergent sanitizers. These double action products were, of course, the natural outcome of the desire for and the need to improve and simplify cleaning and sanitizing processes without increasing costs or labor requirements. Their status today is attested to by the number of such products now being offered to dairymen, food processors, restaurant owners, and others interested in maintaining a high degree of sanitation.

In addition to the more generally used term, detergent-sanitizer, these products are also called sanitizer cleaners, germicidal cleaners, germicidal detergents, and detergent sterilizers. This obviously indicates some degree of confusion as to the kind of action expected from their use. Although, as remarked by DuBois,(1) there is a lack of accepted definition for detergent-sanitizers, it is commonly recognized(2) that these are products which have both cleaning and sanitizing properties and incidentally also act to some extent as deodorants. According to one view, (3) a detergent-sanitizer is primarily a cleaning or washing compound with the sanitizing action as an additional benefit. In connection with these views, it should be noted that a sanitizer has been defined(4) as an agent that reduces the number of bacterial contaminants to safe levels as may be judged by public health requirements.

On the basis of this rather broad description, one could justifiably include a number of compounds in the detergent sanitizer category. However, this discussion will be confined largely to a consideration of compositions based on quaternary ammonium sanitizers. Another important group of detergent-sanitizers, those based on chlorine-liberating compounds, has been considered in some detail in this publication.(5)

Although these compositions have been marketed for only a few years, the idea of combining cleaning and sanitizing agents is not new. Even before World War II, unsuccessful attempts were made to produce effective combinations of detergents and germicides. During the war years, under the pressure of necessity, chlorine type detergent-sanitizers were developed for use on soldiers' mess kits. (6) Later, investigations were made into the efficiency of the quaternary ammonium type dual purpose products, particularly as related to their use by the dairy industry.(7) Subsequently, their potentialities in other fields were given consideration.

Various reasons have been given to explain the growth of interest in and application of the quaternary ammonium type of detergent-sanitizers. Dvorkovitz and Crocker,(8) for example, became interested in such combinations because, in their opinion, such products represented the best way in which to use the quaternaries. Pertinent in this connection are the data cited by Mueller(2) which indicate that the germicidal properties of quaternaries are increased in detergent sanitizers. He also calls attention to the frequent statement that the use of these preparations makes cleaning and sanitizing a simple, single operation.

Similarly, according to DuBois, (1) the ability of these mixtures to achieve cleaning and sanitizing in one operation is being recognized in a growing number of areas in the U. S. He notes that they have proved particularly useful in the dairy industry where they have provided a solution to sanitation problems which could not be handled effectively by conventional procedures. Puhle(9) has attributed their growing popularity to the fact that various quaternary ammonium compounds, and especially the detergent-sanitizers based on them, have been found to be highly effective in inhibiting the growth of thermoduric bacteria on farm equipment.

Also very indicative is Elliker's (10) observation that the development of such combinations has radically altered farm sanitation methods in some parts of the country. He notes, however, that the introduction of detergent sanitizers has met with mixed success in different areas. This he attributes in part to the variations in composition and effectiveness of the preparations on the market and to the incompatible constituents in many water supplies. Variations in methods of use may also play a part in the variable results.

Germicidal properties of quaternaries are increased in detergent sanitizers. The use of these preparations makes cleaning and sanitizing a simple, single operation.

Combining a quaternary ammonium compound and a synthetic detergent yields a product which cleans and sanitizes in one operation.

Trend to Quaternary Type

IT HAS been said(11) that in the field of dairy sanitation, the trend has been toward the use of the quaternary type detergent sanitizers. Not only are they proving very useful for washing equipment in dairy plants, but also for washing milking machines, strainers, pails, and related equipment on dairy farms.(6) In general, says Puhle(9), the inspection of milking equipment of farms testing such compounds gives evidence that a highly satisfactory level of cleaning is being attained. Moreover, the dairymen's personal reactions to the detergent sanitizer method of treatment were found to be highly favorable. In field tests reported by Barber,(12) it was found that, in practically every instance, the farmers were pleased with the detergent sanitizers. Some said that the products cleaned the cow's udder very well and were not harsh on either the udder or the farmer's hands. Examination of milk pails and milking machines showed that there was no film formation and that the equipment was in good condition.

Manual dishwashing in restaurants, taverns and soda fountains may also benefit from the use of such products. The many tests supervised by Mallmann and Kahler(13) show that low bacterial counts can be obtained on dishes as they leave the wash water when a detergent sanitizer is present in sufficient amounts. These workers found that a combination of a detergent sanitizer and a sanitizer rinse is a good method for obtaining dishes and beverage glasses that are free of public health hazard. According to Sotier,(6) the health departments of some cities have gone so far as to require that hand-washed eating and drinking utensils be washed only with approved detergent sanitizers and have banned the use of straight detergents for this purpose.

It is now well recognized that a properly formulated detergent sanitizer has many other applications and can be used wherever there are cleaning or sanitizing problems. Thus, these preparations have been used with considerable success in the clean-up of brewing equipment. They are similarly effective in soft drink bottling plants and food processing establishments. Detergent sanitizers are being used in hospitals and by physicians for the scrub-up and for other sanitizing needs. They are also useful for food handlers where strict sanitary conditions must be maintained.(14) Manufacturers of these products also recommend their use for the sanitary maintenance of wash-rooms, locker rooms, etc.

As noted by Klimek,(15) the use of a detergent sanitizer mixture is feasible only when there is full knowledge of the compatibility of the components, and when the sanitizing problem does not require excessive reuse of solution or overloading with organic material. Pertinent, too, is Sotier's(6) observation that if detergent sanitizers are to succeed they must primarily be good detergents, because if they fail in this respect ultimately they fail completely. Success also depends on high sanitizing power and this sanitizing property should be of a dual nature. First, like any other sanitizer, they should possess sufficient reserve power to sanitize the washed surface. Secondly, the preparations should continually control the number of organisms as they are being washed off the treated surfaces into the washing solution, thereby preventing this solution from recontaminating the object being cleaned. This last is particularly important, says Sotier, in procedures like manual dishwashing.

Stressing the importance of stability, Mueller(2) notes that some of the earlier preparations lost part of their sanitizing effectiveness after a few months' storage. Such difficulties are now being eliminated with improved formulation based on more careful selection of ingredients.

The production of an efficient, stable detergent sanitizer based upon a quaternary ammonium compound requires considerable knowledge because many diverse factors must be considered. In stressing this point, Barber(16) points out that in a detergent sanitizer the bactericidal effectiveness of the quaternary alone may be excellent, but if the formulation of the subsequent compound is not correct, the results obtained may fall far below expectations.

Detergent is Non-ionic

PROVIDED as powders or liquids, these products may consist of mixtures of quaternary ammonium and non-ionic detergents, with or without additions of alkalies and sequestering agents.(17) The concise description by Goetchius,(18) though referring particularly to products for dairy use, is quite indicative. In addition to a quaternary ammonium germicide, he states that the basic requirements for the formulation of a detergent sanitizer are a non-ionic detergent for grease emulsification and promotion of free rinsing; an alkaline cleaner or cleansers such as soda ash, sodium metasilicate or trisodium phosphate; and an organic or inor-

ganic sequestering agent to compensate for water hardness.

Of course there is much more to formulation than this concise description indicates. For example, many effective products for certain applications do not contain or require all the several types of ingredients. Moreover, the selection of all components of a detergent sanitizer requires careful consideration.

Obviously, a good deal of attention must be given to the choice of the quaternary ammonium compound. However, as indicated by the work of Norris and Ruchhoft,(19) this selection will be influenced by the detergent portion of the formulation and by the degree of cleansing action desired. Indeed, considerable technical knowledge is necessary in selecting and correctly balancing detergent products which are compatible with the quaternary.(2)

Since the cationic quaternary ammonium compounds are incompatible with the anionic detergents, including soaps and synthetics, the detergent part of the formulation will be compounded with one or more of such materials as phosphates, polyphosphates, sodium carbonate, borax, and especially non-ionic wetting agents.

Although a high degree of compatibility exists between the cationic quaternaries and the non-ionic detergents, care must also be taken in selecting the basic combining ingredients. This is evident in data(8,20) which show that the addition of a non-ionic to a quaternary may result, in some instances, in the inactivation of the bactericidal effect of the cationic agent.

As already indicated, detergent sanitizers may be made from suitable mixtures of quaternary ammonium compounds and non-ionic detergents. As remarked by McCutcheon,(21) a simple combination of this sort may consist of:

	parts
Alkyl dimethyl benzyl ammonium chloride	40
Non-ionic (fatty acid ethylene oxide condensate)	60

He points out that the high percentage of non-ionic in this formula is necessitated by the final dilution of the product, which requires a concentration of about one part in 10,000 for effective bactericidal protection.

Modifying the non-ionics with alkalies raises soil removing ability of detergent-sanitizers substantially. Alkalies selected should be of the emulsifying rather than saponifying type.

A number of preparations based on such mixtures are now on the market. Their producers recommend the use of these simple combinations for cleaning and sanitizing floors, walls, bins, storage spaces, glass surfaces and the like. It is suggested that they be employed, not only in the home, but in industrial plants and commercial buildings, in kennels and veterinary hospitals and on poultry and animal farms as well.

Ready-mixed combinations, in various ratios, are provided by some raw material producers(22) for distribution as supplied, or for further admixture with alkalies and other agents to extend their usefulness. Noteworthy here is Hucker's(23) observation that the non-ionic compounds may serve as agents to bring into compatibility the quaternary compounds and certain polyphosphates which otherwise are not compatible.

This worker also calls attention to investigations which show that the non-ionic detergents are not particularly effective in themselves, unless modified by the addition of certain alkaline compounds. Such additions not only increase the soil-removing properties of the non-ionics, but also increase the hydrogen-ion concentration and thus intensify the emulsifying properties of this type of detergent. He notes that the first results of using unmodified mixtures indicate promise, but the soil gradually builds up on equipment due to the lack of sustained cleaning properties. Generally, the straight mixtures of non-ionics with quaternaries show good germicidal but poor cleaning action. Modifying the non-ionics with alkalies raises the soil-removing ability from about 60 per cent to over 90 per cent.

Noteworthy, too, is Sotier's (6) observation that quaternaries deliver maximum performance when used on the alkaline side of the pH scale. Hence the formulation should contain alkalies compatible with both the cationic and non-ionic components. Important also is his advice that the alkalies be of the emulsifying rather than of the saponifying type, so that when they contact oils and fats they will not form soaps which would inactivate the germicidal portion of the formulation.

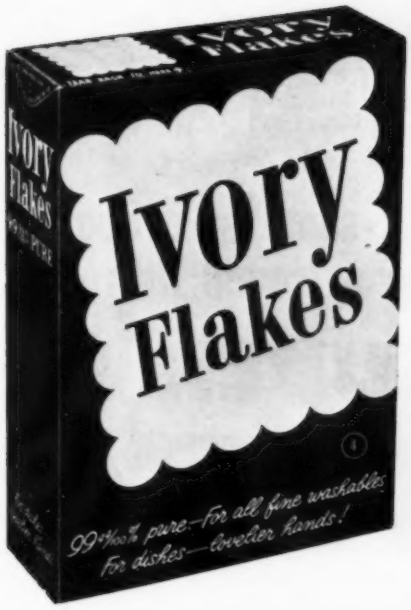
The influence of hard water must also be taken into consideration. However, as noted by Bartlett,(24) properly formulated detergent sanitizers containing alkaline detergents and sequestering agents are even more effective in hard water than is the quaternary itself in distilled water. Unfortunately, say Dahlberg and his colleagues,(25) some of the best water softeners inactivate the quaternaries. Sodium hexametaphosphate and sodium tetraphosphate are considered to be in this class. Under proper conditions, sodium metasilicate and tetrasodium pyrophosphate are more compatible with the quaternaries. Quite compatible are the common washing compounds, such as sodium hydroxide, sodium carbonate, sodium bicarbonate, and trisodium phosphate.

Because there is still much to be learned about the detergent sanitizers, and because it is difficult to predict their performance, it is generally agreed that each formulation be carefully tested before being placed on the market. Special laboratory tests,(2) including the so-called "oval-tube" method(12) and the "rubber strip" test,(11) have been developed for this purpose. Together with field tests,(16) they help to pro-

(*Continued on Page 67*)

WHAT'S
Peggy Sage
Peggy Sage
Peggy Sage
1
Helena Rubinstein
Helena Rubinstein
Deodorant Soap
2
Cream of Almond
Cream of Almond
Cream of Almond
Cream of Almond
Cream of Almond
3

NEW?



1.) A French milled soap has been added to the line of skin care products of Peggy Sage, New York. New soap which comes in two scents: sandalwood or sweetgrass, is packaged as three cakes to retail for $1.50, or as soap chest shown here. It contains two cakes of bath size soap, three hand size cakes and three guest size bars. This assortment retails for $7.50.

2.) Something new in decdorant soaps is Helena Rubinstein's (New York) new transparent deodorant soap. Clear, transparent amber in color, new soap is crescent shaped to fit the hand. A single cake retails for 60 cents, two for $1.00.

3.) New packaging for hard-milled soap cakes of Shulton, Inc., New York. Four packaged cakes of soap in almond fragrance retail for $1.50.

4.) "Ivory Flakes" are now appearing in a new package, according to Procter & Gamble Co., Cincinnati. New blue and white package is preferred four to one over the older style, tests show.

5.) Part of the new "Sport of Kings" line of toiletries by the House of Gourielli, New York, is shave soap in heavy, flat horseshoe shaped clear glass container with appropriate grooves for re-use later as an ash tray. Retails for $1.50.

6.) Sulton, Inc., New York, is now featuring its lanolin soap in a new flat style box. Six cakes of this French milled soap retail for $2.00.

7.) Franklin Research Co., Philadelphia, recently switched its package for "Dustchek" for treating floor cloths and mops. New one gallon "Duraglas" glass bottle, made by Owens-Illinois Glass Co., Toledo, O., features plastic cap. Blue, direct-on-glass printing for label design and directions stand out on oyster white background of liquid.

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Detergent Use at Peak

U. S. per capita soap and synthetic detergent consumption 30 pounds in 1950—syndet uses more than doubled in 2-year period, 1948-1950

PER capita "disappearance" of soaps and synthetic detergents in the U. S. in 1950 at 30 pounds was at one of the highest levels in a non-war period since figures were first kept. A comprehensive review of soap and synthetic detergent production and consumption in discussion and tabular form is presented in the May-June number of the *Fats and Oils Situation*, issued recently by the Bureau of Agricultural Economics of the U. S. Department of Agriculture, Washington, D. C.

The increased rate of consumption of synthetic detergents is traced in the report. Last year the civilian per capita rate of consumption of synthetic detergents was eight pounds, the remaining twenty-two pounds being soap. In 1949, when the total civilian per capita consumption rate of soaps and synthetic detergents was 27 pounds, only five pounds of synthetics were used per capita, while the soap figure was 22 pounds. Thus, in 1950 synthetic detergents gained at the expense of soaps in the total picture.

Total disappearance (consumption) of soaps and synthetic detergents in 1950 was four and one-half billion pounds, as against slightly better than four billion pounds in 1949, according to the figures in the *Fats and Oils Situation* report. Of a total production of about 4,700,000,000 pounds, soap output in '50 was put at an estimated 3,500,000,000 pounds and synthetic detergents at 1,200,000,000 pounds. In the previous year the soap figure was 3,400,000,000 pounds and synthetic detergents 800,000,000 pounds. Figures on synthetic

TABLE 9
Soap and synthetic detergents: Estimated supply and disposition, 1921-1950

Year	Total saponifiable materials used in soap		Estimated production of soap [3]	Estimated retail sales of synthetic detergents [4]	Imports of soap	Total Supply	Exports and shipments to U. S. Territories of soap	Use of soap in synthetic rubber [5]	Disappearance: Military excluding relief [6]	Disappearance: Civilian: Total	Disappearance: Civilian: Per Capita	Civilian per capita: Soap	Civilian per capita: Synthetic detergents
	Mil. lb.[1]	Per cent[2]	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	Mil. lb.	lb.	lb.	lb.
1921	1,111	46	2,400		3	2,403	91			2,312	21		
1922	1,237	46	2,700		5	2,705	107			2,598	23		
1923	1,315	46	2,900		5	2,905	113			2,792	25		
1924	1,409	47	3,000		5	3,005	101			2,902	25		
1925	1,532	48	3,200		5	3,205	100			3,105	27		
1926	1,584	48	3,300		6	3,306	108			3,198	27		
1927	1,710	49	3,500		6	3,506	104			3,402	28		
1928	1,711	49	3,500		7	3,507	90			3,417	28		
1929	1,794	50	3,600		7	3,607	105			3,502	29		
1930	1,651	50	3,300		7	3,307	93			3,214	26		
1931	1,680	51	3,300		6	3,306	79			3,227	26		
1932	1,644	51	3,200		5	3,205	66			3,139	25		
1933	1,591	52	3,100		4	3,104	59			3,045	24		
1934	1,782	52	3,400		12	3,412	59			3,353	26		
1935	1,619	53	3,100		22	3,122	60			3,062	24		
1936	1,738	53	3,300	3	4	3,307	65			3,242	25	25	[7]
1937	1,789	53	3,400	7	4	3,411	68			3,343	26	26	[7]
1938	1,766	53	3,300	10	3	3,313	60			3,253	25	25	[7]
1939	1,941	53	3,700	20	3	3,723	75			3,648	28	28	[7]
1940	1,972	53	3,700	30	5	3,735	67			3,668	28	28	[7]
1941	2,438	53	4,600	40	11	4,651	84	1	55	4,511	34	34	[7]
1942	2,160	52	4,100	60	4	4,164	59	2	120	3,973	30	30	[7]
1943	2,116	51	4,100	80	8	4,188	59	22	350	3,757	29	28	1
1944	2,526	51	5,000	100	1	5,101	52	89	400	4,560	35	34	1
1945	2,272	51	4,500	200	3	4,703	120	94	400	4,080	31	30	1
1946	1,957	50	3,900	300	8	4,208	157	72	15	3,964	28	26	2
1947	2,443	55	4,400	400	1	4,801	[8] 138	50	40	4,573	32	29	3
1948	2,293	55	4,000	600	1	4,601	[8] 92	50	37	4,422	30	26	4
1949	1,887	55	3,400	800	1	4,201	[8] 80	48	41	4,032	27	22	5
1950[9]	1,929	55	3,500	1,200	1	4,701	[8] 76	56	45	4,524	30	22	8
1951													
1952													

[1] From last line of table 8.
[2] Estimated in Census years by multiplying production of individual types of soap as reported by the Census of Manufactures by the estimated fat content, obtaining the total, and dividing this by the reported production of soap.
[3] Column (1) divided by column (2) times 100.
[4] Derived from a chart published on page 38 of *Soap and Sanitary Chemicals*, March 1951.
[5] From Office of Rubber Reserve, Reconstruction Finance Corporation, 1947-50 were partly estimated.
[6] Estimates based in part on data given in *Statistical Yearbook of the Quartermaster Corps for* 1947.
[7] Less than one-half pound.
[8] Includes shipments in CARE packages.
[9] Preliminary.

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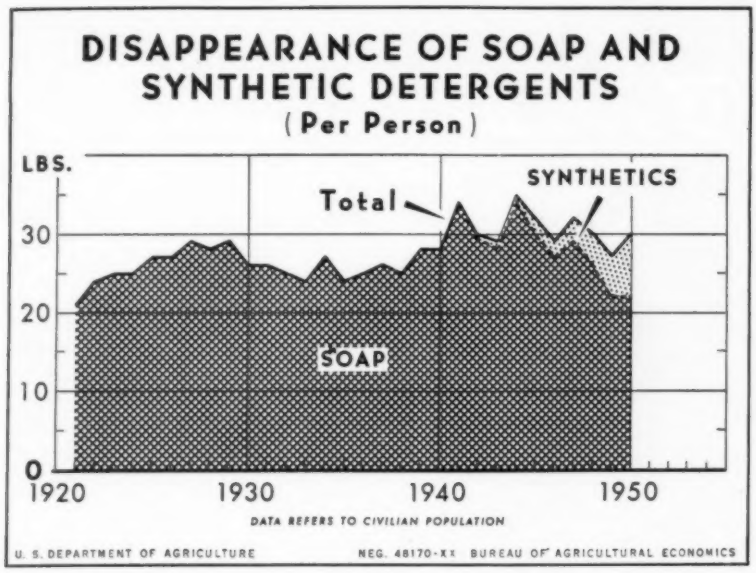

detergent production are given annually back to 1936, when an estimated 3,000,000 pounds of synthetics were turned out.

Figures on soap imports show how these have dwindled to approximately a million pounds per year, a rate that has obtained for the last four years. Exports of soap are at a lower level (76 million pounds in 1950) than in the previous five years, although well above the rate for 14 years earlier.

The revived demand for synthetic rubber is reflected in the increased use of soap in synthetic rubber. In 1950, 56 million pounds were reported so used, as against 48 million pounds in the previous year, and 94 million pounds in the peak World War II year of 1945. Figures for soap in rubber use and for military purposes, excluding relief, going back to 1941, are given. Use of soap by the military in 1950 totaled 45 million pounds, the highest rate of use since 1945 when 400 million pounds were so consumed.

Of particular interest and significance is a table: "Production of soap by specified types, and estimated retail sales of synthetic detergents, census years, 1904 - 47." Clearly charted in this table is the rapid rate of growth between 1939 and 1947 of production of granulated, powdered and sprayed soaps; the continued upward climb of toilet soaps, the sharp decline of laundry bar soap, the tapering off of chips and flakes and the tremendous strides forward made in retail sales of synthetic detergents and total granulated, chips and synthetics.

Granular, powdered and sprayed type products in 1947 were produced at the rate of 1,546,000,000 pounds, against 893,000,000 pounds in 1939.

Toilet soap production in 1947 reached its peak up to that point with a production figure of 566,000,000 pounds. The annual production rate was 409,000,000 pounds in '39.

Laundry bar soaps in 1947, reaching their lowest point since before 1904, from the standpoint of production, were turned out at the rate of 765 million pounds in 1947, declining from the 1939 level of 1,240,000,000 pounds.

Production of soap chips and flakes, competing with newer beads and granular type products, are losing ground in the struggle. In 1947, their production was put at 423,000,000 pounds, against 419,000,000 in '39, and 390,000,000 in '37.

The spectacular rise of the syn-

(*Turn to Page 53*)

TABLE 10
Production of soap by specified types, and estimated retail sales of synthetic detergents census years, 1904-47

Census Years	*Production of soap*[1]				*Retail sales of synthetic detergents*[3]	*Total granulated chips and synthetics*	*Total general purpose items*[4]
	Toilet	*Laundry bars*[2]	*Granulated, powdered and sprayed*	*Chips and flakes*			
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
1904	130	1104		—		—	1104
1909	112	1381		—		—	1381
1914	170	1429		98		98	1527
1919	179	1347		182		182	1529
1921	197	1305		144		144	1449
1923	240	1515		219		219	1734
1925	272	1431	142	325		467	1898
1927	287	1487	216	373		589	2076
1929	324	1466	337	388		725	2191
1931	305	1431	422	351		773	2204
1933	315	1258	370	399		769	2027
1935	352	1134	503	459		962	2096
1937	360	1122	743	390	7	1140	2262
1939	409	1240	893	419	20	1332	2572
1947	566	765	1546	423	400	2369	3134

[1] From Census of Manufactures.
[2] Total of "tallow" and "other hard soaps" prior to 1925.
[3] Derived from a chart published on page 38 of *Soap and Sanitary Chemicals*, March 1951.
[4] Includes laundry bars; granulated, powdered and sprayed soap; chipped and flaked soap; and retail sales of synthetic detergents.

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Solvent-Detergent Products

By A. Davidsohn
Haifa, Israel

SOAP-SOLVENT combinations are well known commercial products, useful in the textile industry as dry cleaning soaps and spotting soaps. In recent years, surface active agents combined with solvents have found similar applications, and are used also as degreasing agents in the metal industry, and as solvent emulsifiers for insecticides.

In combining sulfonated castor oil with solvents (1), it was observed that micellar structures are obtained. These studies led to further experiments with the more modern type of anionic detergents, namely, the alkyl aryl sulfonates. Laboratory experiments led to the development of manufacturing processes suitable for the production of "solvent detergents" on a large scale (2). These manufacturing processes are designed to produce the solvent-containing neutral detergents directly from the acid sulfonate in one special neutralizing process. A suitable starting material for such a process is dodecyl benzene, which is sulfonated according to the conventional method (3). The sulfonate is washed with water, so as to yield a sulfonate as free as possible from unreacted sulfuric acid. A sulfonate of about 90 per cent pure acid dodecyl sulfonate is obtained easily. It is suitable for production of solvent containing alkyl aryl sulfonate.

The washed sulfonate is mixed with solvents and neutralized with concentrated caustic soda solution. The neutral solvent-containing sulfonate gives a clear solution with water, and within certain concentrations it can be prepared with fair solvent solubility. If excess solvent is used for diluting the acid sulfonate before neutralization, a clear liquid is obtained, which forms very stable emulsions in water and possesses high wetting power as well.

A typical example follows: Dilute 50 parts of washed acid dodecyl benzene sulfonate in a stainless steel neutralizing vessel, fitted with a stirrer and a cooling jacket, with 50 parts of kerosene and 10 parts of isopropanol. The sulfonate-solvent mixture is then neutralized with 28 parts of caustic soda solution of 36° Be. The caustic soda is added slowly. The temperature of the reaction mixture is not allowed to become warmer than 50°C., which is accomplished easily by simple water cooling. Even without cooling, the reaction mixture may be kept below this temperature by regulating the flow of caustic soda solution. The neutralization reaction, which otherwise is rather violent, requiring strong cooling with ice, etc. (3), proceeds without much heat development when the acid sulfonate is diluted with solvents. The product obtained is a clear liquid from which some of the crystals of sodium sulfonate may be separated at low temperature and can be removed easily by simple decanting or filtering. The product is clearly soluble in distilled or soft water. On the other hand, it is soluble in solvents such as kerosene, and aromatic hydrocarbons. If the product is diluted further with solvents, it gives stable emulsions with water. Practically all the well-known commercially available detergents of the alkyl aryl sulfonate types, such as "Nacconol NR," "Santomerse," "Ultrawet," "Kreelon," etc., are insoluble in cold nonpolar solvents such as kerosene, xylene, benzene, etc. By the method described above, it is possible to produce alkyl aryl sulfonates which are completely soluble in practically all types of solvents. Thus a genuine, "all-purpose" detergent, soluble in water and in solvents can be produced.

Water-Soluble Mixture

PROPERTIES of the kerosene-detergent mixture are very interesting from both practical and theoretical points of view. For one thing, the mixture is clearly soluble in water in spite of a high percentage of a completely water insoluble nonpolar solvent, such as kerosene. It is even possible to produce such water soluble kerosene detergents without the help of an auxiliary co-solvent such as isopropanol. Owing to the solubilization of the solvent, the aqueous solution shows strong foaming properties in spite of the presence of kerosene. In distilled water it shows strong wetting power at a concentration of .1 per cent (based on active sodium dodecyl benzene sulfonate). The Draves test is below 70 seconds, and a .2 solution shows a Draves test of 40 seconds.

If the solution is made in water of 200 or more degrees hardness, somewhat turbid solutions are obtained, giving a sinking time of 15 seconds at a concentraton of .1 per cent. In this case it seems that the solvent has a kind of synergistic effect on the detergent. This might be explained by the solubility of the reaction product of the alkyl aryl sulfonate with the lime and magnesium salts of the water in the solvent present. The practical implications of this interesting fact are especially important if hard water is used. As in the case of common dodecyl benzene detergents, phosphates, such as metaphosphates and tetrasodium-pyrophosphates, strongly enhance the foaming qualities of the solvent containing

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dodecyl benzene sulfonates, too. Another important fact is that the solvent-containing detergent may be used in strongly acid solutions. A solution of the solvent-detergent in hot, two or three per cent sulfuric acid remains clear and unaffected. This is important for many processes in dyeing textiles as well as in the metal industry, where the solvent-detergent may serve as an aid in pickling operations, making it possible to start pickling operations of oily or greasy metal parts without previous degreasing. The solvent-detergent is resistant to alkalies as well. Practically all concentrations encountered in textile processing and in metal degreasing showed no destructive effect on the solvent-detergent. The fact that the product is also soluble in solvents makes it a suitable wetting agent for all solvent cleaning operations, such as dry cleaning, solvent degreasing of metal parts, cleaning of internal combustion engines, etc.

It is possible in the above working formula, to replace the kerosene with such aromatic solvents as benzene, toluene, and xylene, as well as with such low boiling solvents as petrol or petrol ethers. The fact that the neutralization may be carried out in dilutions of the acid sulfonate in low boiling solvents makes it possible to produce highly concentrated alkyl aryl sulfonates. This can be accomplished without having to carry out the neutralization operation with dilute alkali solutions and then evaporating the water on a drum dryer or by spray drying. To carry out such a neutralization operation, the acid sulfonate is diluted with about double its weight of hexane or other low boiling solvent; the neutralizaion being carried out in a closed system. The caustic soda solution is added and the heat of neutralization used to evaporate part or all of the solvent during the neutralization operation. The solvent is recovered by condensation in a condensor attached to the closed neutralizer. If necessary, the last traces of solvent may be removed by vacuum. It is sometimes advisable to construct the neutralization vessel similar to a soap crutcher. By inverting the direction of the screw rotation even a very viscous or paste-like end product can be removed from the neutralization vessel. Thus a concentrated neutral sulfonate will be obtained without special cooling, to avoid the danger of overheating. At the same time, the necessity of having to use expensive drying equipment is obviated. Such equipment generally represents a major part of the investment for a synthetic detergent plant. Neutralization of the solvent containing acid sulfonate may also be carried out in the dry state, which gives as the end product a ready made powder.

The following is an example of such an operation: Fifty parts acid dodecyl benzene sulfonate are diluted with 25 parts of kerosene. This mixture is then incorporated into 200 parts of soda ash in a stainless steel crutcher (suitably fitted with a water cooling jacket, which is not necessary if the sulfonate solvent mixture is added slowly enough). Soda ash may be replaced partly by a mixture of anhydrous sodium sulfate anhydrous sodium phosphate, etc. The product obtained from the amalgamator is a free flowing powder, which generally does not require any additional grinding. The powder is practically clearly soluble in water and does not tend to cake, in spite of the fact that it contains nearly ten per cent solvent. If no solvent is to be retained in the finished powder, the neutralization may be carried out with a low boiling solvent for diluting the acid sulfonate. This is then allowed to evaporate during the dry neutralization in the amalgamator. The solvent may be considered a loss, if it is allowed to leave the amalgamator without recovery (in this case special fire precautions must be taken), or it may be removed from a closed amalgamator, which has a condensor attached to it. The heat of the neutralization is used for evaporating the solvent and no cooling of the amalgamator is necessary. Such a process makes it possible to produce a free flowing, ready - compounded powder directly from the acid sulfonate without spray drying or other expensive drying operation. Generally it is not even necessary to pass the powder over a pulverizing mill.

Soap-Alkyl Aryl Blend

A FURTHER line of detergents is the combined soap-alkyl aryl sulfonate type of product, which has been tested recently. Formulas tested by L. H. Flett and his co-workers (4) were mixtures of "Nacconol" with coconut oil soap, prepared from fatty acids mixed previously with "Nacconol NRSF" and saponified with caustic soda in the crutcher. A textile soap-detergent mixture was prepared according to the following formula:

	pounds
Palm oil soap	300
"Nacconol NR"	100
Soda ash	225
Pine oil	132
Water to make 100 gals.	

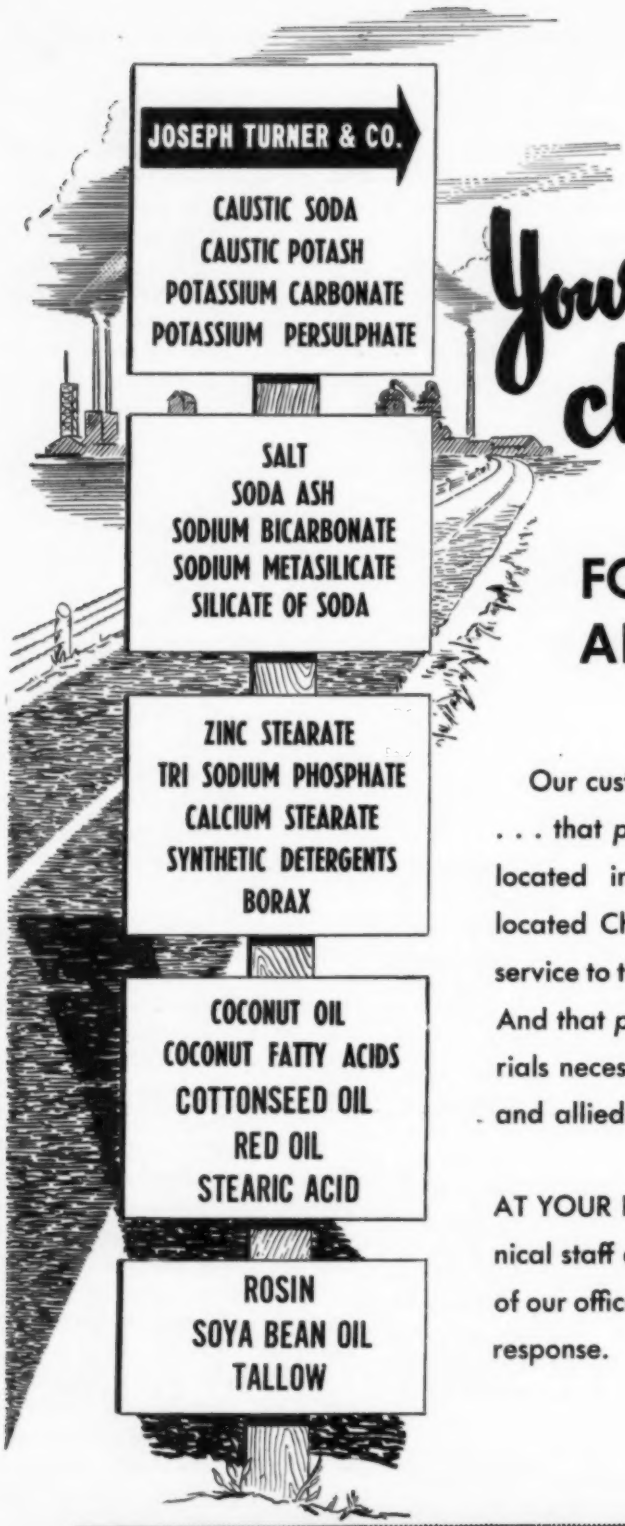
The results with these soap-detergents mixtures have been very encouraging, and according to Flett and his co-workers, there is a great future for these combinations.

The methods as described for the preparation of solvent-detergents lend themselves very well to the preparation of this type of soap-detergent mixture. Those firms particularly which produce soaps as well as detergents can produce such mixtures easily, with and without solvents, in one combined neutralization and saponification operation. In so doing, it is not necessary to start with a neutralized ready-made detergent, which was produced by a separate neutralization and drying process. The process can begin with the washed acid sulfonate, which is mixed with fatty acids and then neutralized together with the fatty acids in one operation. If solvents are to be used in conjunction with such mixtures, they can be added to the sulfonate-fatty acid mixture before neutralization. Very interesting and attractive products can be obtained by this simplified method. The following products are examples for this procedure:

I. *Powder without solvent*

Fifty parts of washed acid dodecyl benzene sulfonate are combined with 50 parts of coconut fatty

(*Turn to Page* 149)



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TRADE NEWS

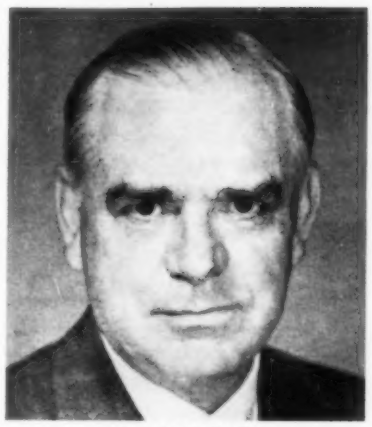
FTC Soap Hearings

Two new complaints have been entered in the Federal Trade Commission hearings resumed July 25th against Procter & Gamble, Lever Bros. Co., and Colgate-Palmolive-Peet Co. The companies are alleged to have shown preference in giving advertising rebates to chain groceries and in having charged higher prices to smaller stores.

In the course of the hearings, John York, trial attorney for the FTC, entered various exhibits, including A&P purchase orders for P&G products during 1950 and 1951 and copies of the advertising contracts during that time in specified areas. The P&G advertising agreement showed that the allowance which P&G makes to retailers for advertising ranges from 9 cents to 20 cents a case, depending on the particular soap product advertised, and the amount and type of advertising taken. Minimum advertising requirements and display space are a part of the agreement.

The hearings ended temporarily August 1st, since Examiner Kolb had to go to Washington for another hearing at that time. No date had been set for resuming the hearings.

The FTC hearings reported above are not to be confused with those being held in Newark, N. J., by the Department of Justice, which is conducting a Federal Grand Jury investigation to determine whether a conspiracy to restrain trade and fix prices exists in the soap industry. In that investigation, before Chief Federal Judge Forman, who earlier had completed a ruling on demands for soap company records made by government investigators, a timetable for production of records was reported to have been set by the judge. The timetable was to be used to keep company records and data covering a 27-year period flowing to the inquiry at an even rate.



H. J. DAIGNEAULT

M. A. CONNER

New National Aniline V.P's.

H. J. Daigneault and M. A. Conner recently have been appointed vice-presidents of National Aniline Division, Allied Chemical & Dye Corp., New York. Both have been associated with National Aniline for over 30 years. Mr. Daigneault was, for many years, manager of the New England territory and more recently, has been director of domestic sales.

He continues to direct National Aniline sales of synthetic detergents, dyes and organic chemicals.

Mr. Conner has held various positions in the production division, both at the Buffalo, N. Y. plant and in New York, and has recently been assistant to the general manager. In his new position he concentrates upon manufacturing activities and long-range planning.

Safety Award to P&G Unit

Employees of the Dallas plant of Procter & Gamble Co., Cincinnati, won second place in the chemical industry section of the National Safety Council's safety contest for 1950, it was announced recently. More than 540 chemical establishments participated in the contest, according to P. Fulkerson, factory superintendent.

To Construct Mennen Plant

The general contract for the construction of the $3,000,000 plant of Mennen Co., Newark, N. J., in Morris Township, N. J., was awarded recently to George A. Fuller Co., New York. The building will provide 270,000 square feet of floor space. A. M. Kinney, Inc., of Cincinnati, is the consulting engineer and architect.

Soap Prices Cut

Soap price reductions ranging from three and one-half to four and one-half percent were announced in mid-July. The cuts in wholesale prices are reflected in retail prices which are now a cent lower on most large packages of soaps and detergents, and correspondingly lower on bar soaps. The new level of prices, publicly announced by Lever Brothers Co., New York; Procter & Gamble Co., Cincinnati, and Colgate-Palmolive-Peet Co., Jersey City, N. J., are expected to be put into effect by most other soapers. Lower prices for fats and oils are responsible for the price reductions, which bring the levels back to those effective in November last. Shortening price cuts of up to 11 percent were also announced.

Lifebuoy Advtg. to Scully

Advancement of William H. Scully to the post of advertising brand manager for "Lifebuoy" soap was announced recently by James A. Barnett, vice-president in charge of advertising for Lever Brothers Co., New York. Mr. Scully was formerly assistant brand manager. A native of Cambridge, he joined the company there in 1937, following graduation from Boston University School of Business Administration. He later received his master's degree in advertising from the school.

Shortly after joining the company he became a member of the advertising research department, later being advanced to the radio section. Following four years in service, during which he received a number of decorations including the Purple Heart and the Silver Star and the Legion of Merit, he rejoined Lever as supervisor of the advertising accounting section. In 1946, he was named assistant to the vice-president in charge of advertising, and early in 1951 was made an assistant brand manager.

Gerhart Heads Art Group

Charles T. Gerhart, art director of packaging and advertising for Procter & Gamble Co., Cincinnati, was elected as president of the National Society of Art Directors at the group's recent annual meeting in New York. Mr. Gerhart also recently completed a term as charter president of the Cincinnati Art Directors' Club, and is active in the Cincinnati Advertisers' Club. He became associated with Procter & Gamble in 1928.

Soap Sculpture Contest

Names of winners of cash prize awards in the 24th annual National Soap Sculpture Competition were announced recently by Henry Bern, director of the committee at the Barbizon Plaza Hotel, New York, where thousands of entries were exhibited. There were 89 cash awards, totaling $3,775 donated by Procter & Gamble Co., Cincinnati. The three classes of entries in the 24th annual competition were: Junior, under 14 years of age; Senior, 14 to 18 and Advance, for amateurs over 18.

Next year will be the silver anniversary of the soap sculpture contest and plans for special activities and prizes marking the event will be announced shortly.

Acquires "Mafos" Rights

"J" Chemical Works, New York, recently purchased from Mathieson Chemical Corp., Baltimore, all rights to manufacture and distribute "Super Mafos Briquets" for mechanical dishwashing and "Super Nufos Briquets" for can washing.

Del Mar Joins Lever Ltd.

R. H. Del Mar has been appointed commercial director of Lever Bros. (S.A.) (Pty.) Ltd. He was formerly the managing director of Glycerin Ltd., and secretary of the United Kingdom Glycerin Producer's Association.

Germany Soap Fair Dates

The annual German soap and cosmetics fair is scheduled to take place in West Berlin, Germany, Sept. 8-12, it was announced recently. Efforts are being made to have West German authorities again set up a foreign currency quota for the import of soaps and cosmetics from abroad.

More Stanley Advtg.

An expansion of its advertising on "Stanley's Castile" lather and brushless shave creams was announced recently by John T. Stanley Co., New York. Advertising plans call for television spots in the New York area and newspapers, truck posters and point-of-sale material.

Lever Subsidiary Plant

Joseph Crosfield & Sons, Ltd., Warrington, England, a subsidiary of Lever Brothers and Unilever, Ltd., is building a $3,000,000 plant near Liverpool to make Davidson Chemical Corp.'s fluid-type synthetic cracking catalyst. The plant, which will be British-financed, is expected to be completed by the end of this year.

Detergents Change Washing

New detergents are responsible for changed methods of doing laundry in American homes in more than half of the cases in which such changes have taken place, according to a survey completed recently by the Home Makers Guild of America for Owens-Illinois Glass Co., Toledo. Nearly two-thirds of American home makers who do all or part of their laundry at home believe they are handling their laundry in a different manner today than they did five years ago. Of the consultants who believe that they have changed their methods of doing their laundry, 53 percent state that the change in laundry habits had to do with the introduction of new detergents. New soaps also were cited as reasons for changed home laundering methods by the consultants questioned. Other factors cited for changes include new bluing methods, new bleaches and new ironing methods.

The findings, which are contained in a 16-page booklet, are based on a return of 955 completed questionnaires out of a mailing to 1,000 consultants in April of this year. Volunteer consultants participating in the survey represent a cross section of American home life, having the characteristics of the typical American home and, therefore, the characteristics of the nation's thinking, according to an announcement accompanying the booklet. Location of consultants parallels distribution of population by state and city size.

Frank T. Ehrnman Dies

Frank T. Ehrnman, 79, formerly for 25 years foreign representative of Lanman & Kemp-Barclay Co., New York, died at his home in Yonkers, N. Y., July 23. He was born in Malta Bend, Mo., and retired 10 years ago.

BIMS Golf Outing

The Boston BIMS have scheduled a golf outing for August 16th at the Woodland Golf Club, Auburndale, Mass., according to an announcement from H. H. Harris, Jr., S. B. Penick & Co., chairman of the executive committee.

C-P-P Advances Jewett

Hugh Jewett has recently been appointed controller of the Colgate-Palmolive-Peet Co., Jersey City, N. J.

HUGH JEWETT

succeeding P. S. Kyger, who has retired.

Oils, Fats Under CPR 61

Export sales of fats and oils have been placed under the provisions of the Export Ceiling Price Regulation (CPR 61), according to a recent announcement from the Office of Price Stabilization. Tallows, greases, fats and oils products in finished form, are included in the provisions of the new export law.

Chlorine Ample in '52

A 50 per cent expansion in production capacity is expected to overcome the chlorine shortage within a year, according to a recent announcement by the industry committee of the National Production Authority. Increased production is also expected to overcome shortages of naphthalene, zinc chloride, and some other chemicals; while increased imports are contributing to relieve styrene and benzene shortages.

Sees Detergent Output Cut

Further increases in the production of synthetic detergents may be restricted by the shortage of sulfuric acid, the National Production Authority announced following a meeting with the Industry Advisory Committee in Washington, August 6. The current production rate of synthetic detergents—13 per cent above the 1950 rate—apparently is sufficient to meet pressing demands, but the committee members said they expect next year's requirements to rise another 15 per cent.

NPA reported that the synthetic detergent industry is now using 15,300 tons of sulfuric acid a month, —500 tons per month more than in 1950—and that it may be necessary to curtail this rate in coming months. The supply picture of other raw materials used in synthetic detergents is brighter, NPA said. There will be enough sodium phosphates unless there is an all out-war. The supply of benzene —although tight—is sufficient now and increasing production promises further relief, the committee was informed.

George A. Wrisley of the NPA's Chemical Division presided.

These committee members attended: H. J. Daigneault, National Aniline Division, Allied Chemical & Dye Corp., New York; Dr. H. W. Zussman, Alrose Chemical Co., Craston, R. I.; Dr. A. B. Hersberger, Atlantic Refining Co., Philadelphia; K. E. Mulford, Atlas Powder Co., Wilmington, Del.; James A. Reilly, Colgate-Palmolive-Peet Co., Jersey City, N. J.; Dr. Roy Mayhew, General Aniline & Film Corp., Easton, Pa.; J. O. Brownell, Lever Brothers Co., New York; Foster Jones, Nopco Chemical Co., Harrison, N. J.; Richard Dexheimer, Onyx Oil and Chemical Co., Jersey City, N. J.; H. E. Bramston-Cook, Oronite Chemical Co., New York; Mark Upson, Procter & Gamble Co., Cincinnati; A. C. Stoneman, Purex Corp., Ltd., South Gate, Calif.; A. C. Stepan, Jr., Stepan Chemical Co., Chicago; F. H. Buck, Jr., Ultra Chemical Works, Paterson, N. J.

Detergent Use

(*From Page* 45)

thetic detergents is illustrated by the comparison of the 1939 and 1947 retail sales figures of 400,000,000 pounds and 20,000,000 pounds, respectively.

Total retail sales of granulated chips and synthetic detergents in 1947 amounted to 2,369,000,000 pounds, as against 1,332,000,000 pounds in 1939.

The total of "general purpose" items for 1947 is listed as 3,134,000,000 pounds, as compared with 2,572,000,000 pounds in 1939 and 2,262,000,000 pounds in 1937.

Nowland Heads Cinn. Assn.

Frank D. Nowland of Geo. H. Nowland Co., Cincinnati, was elected recently as president of the Cincinnati

FRANK D. NOWLAND

Drug and Chemical Association. He succeeds Walter M. Eller of Fritzsche Brothers. Also elected were Fred Rohl of Amsco Solvents and Chemical Co. vice-president; Vernon Tucker of Mallinckrodt Chemical Co., secretary and Lawrence Meiners of Merchants Chemical Co., treasurer.

Order Soap Bill Hearings

Hearings on a bill of Senator Guy M. Gillette of Iowa to define soap as a cosmetic and bring it under the Food, Drug and Cosmetic Act, and to require exact labeling for soaps and detergents, were ordered recently by a subcommittee on health of the Senate Labor and Welfare Committee. The Gillette Bill S. 345, would amend section 201 (1) by eliminating the exemption of soap from the definition of a cosmetic and adding a subsection to section 602 which would require soap and detergent labels to bear common or usual name of the product and a list of its ingredients. No date has been set as yet for the hearings.

Oronite to Expand

Plans for a $1,500,000 expansion of facilities for production of synthetic detergent materials were announced recently by T. S. Petersen, president of Standard Oil Company of California. Standard will build the additional facilities at its Richmond refinery for its chemical subsidiary, Oronite Chemical Company.

DRYMET*

THE ECONOMICAL DETERGENT SILICATE

Cowles DRYMET, anhydrous sodium metasilicate, is the most highly concentrated form of sodium metasilicate available. It is more economical to use, on the basis of both Na_2O (alkalinity) and SiO_2 (silicate) than any other type of hydrated or anhydrous detergent silicate, either compounded or by itself. DRYMET contains no water of crystallization.

DRYSEQ*

THE ALL-PURPOSE DETERGENT SILICATE

Cowles DRYSEQ, anhydrous sodium sesquisilicate, is a medium pH alkaline cleaner which will do fast, dependable work at a low cost to the user. It is a white, free-flowing powder, quickly and completely soluble in hot or cold water—containing 56.75% Na_2O—making it an economical base material for compounding.

DRYORTH*

THE HEAVY-DUTY DETERGENT SILICATE

Cowles DRYORTH, anhydrous sodium orthosilicate, is a powerful, speedy, heavy-duty cleaner with valuable penetrating and wetting-out properties, reinforced dirt-removing power and unusual emulsifying action. It is an anhydrous, free-flowing powdered silicate containing not less than 60% Na_2O, which may also be used as an economical constituent of high pH cleaning compounds.

CRYSTAMET*

THE MEDIUM pH DETERGENT SILICATE

Cowles CRYSTAMET is a pure, perfectly white, free-flowing granular pentahydrate sodium metasilicate with the normal 42% water of crystallization. Suggested for compounding when it is desirable to lower the concentration of a finished product. Readily soluble—chemically stable—easy to handle. Can be used on medium pH jobs.

Cowles Chemicals

We'll be glad to send you our DRYMET File Folder containing complete technical information and suggested formulations.

* REG. U. S. PAT. OFF.

COWLES CHEMICAL COMPANY

HEAVY CHEMICAL DEPARTMENT • CLEVELAND 3, OHIO

Alan Porter Lee Dies

Alan Porter Lee, 61, consulting chemist and engineer who was closely associated with the soap industry for many years died at his home in Morristown, N. J., Aug. 9, after a brief illness. He was president of Alan Porter Lee, Inc., consulting chemical engineers with headquarters in Morristown and formerly in New York.

Formerly technical editor (1929-1933) of *Soap and Sanitary Chemicals*, Mr. Lee also edited *Oil and Fat Industries* during the same period. Subsequently he was editor of *Oil and Soap*, published by the American Oil Chemists' Society, of which he was once vice-president.

For the last 25 years he had been a consulting and manufacturing engineer, specializing in the construction of soap and edible oil plants. He built a number of spray towers for soap and detergent firms in the United States, and designed both soap and edible oil plants in South America and Africa.

Mr. Lee was born in Washington, D. C., and received a B.S. degree from Washington and Lee University in 1908. He had been a chemical engineer for the Columbia Cotton Oil Co. and official chemist and consulting chemical engineer for the New York Produce Exchange. He had also been chemical engineer and refining superintendent of the Southern Cotton Oil Co. and chemical engineer for Palmolive Co. At one time he was vice-president of W. C. Hardesty Co.

ALAN PORTER LEE

Surviving are his widow, Mrs. Marguerite Coast Lee; a son, Alan C. Lee of Morristown, and a sister, Mrs. David Lee of Seattle.

P&G Quarterly Dividend

A regular quarterly dividend of 65 cents a share on the common stock, payable Aug. 15, to stock of record July 27, was declared recently by Procter & Gamble Co., Cincinnati.

New Strykers Boiler

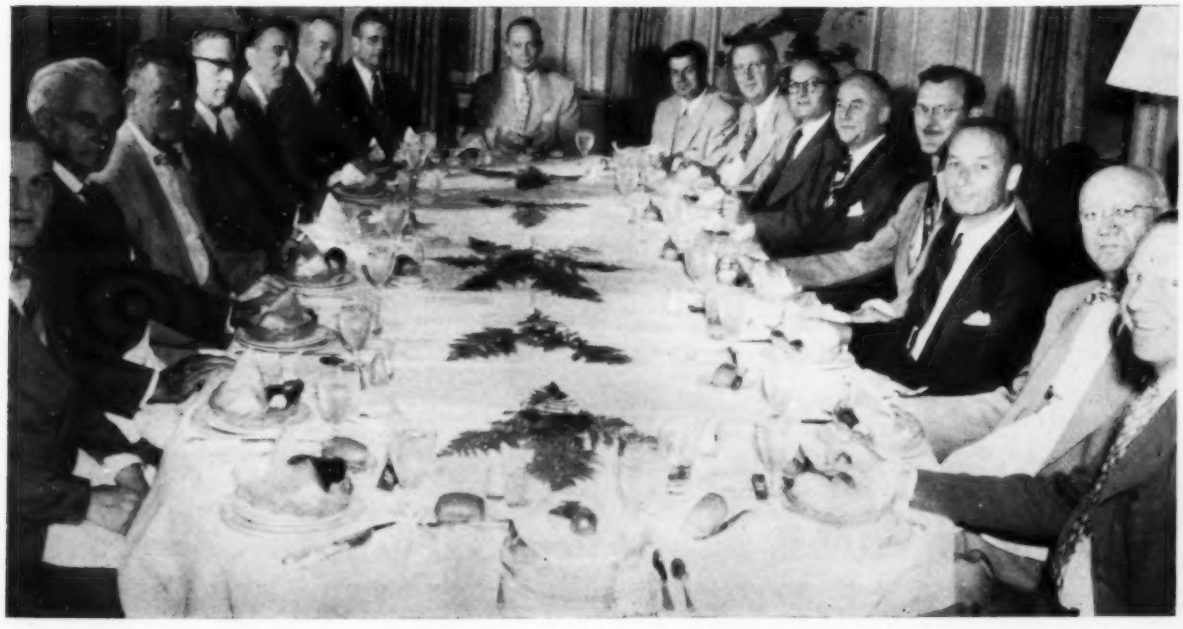
Strykers Soap Co. division of Newell Gutradt Co., San Francisco, recently completed a $35,000 boiler installation. The boiler was manufactured by Gabriel Fabrication & Erection Co., Portland, Ore. Eventually it will be moved to the company's new three and one-half acre plant site in South San Francisco.

New Cudahy Plant

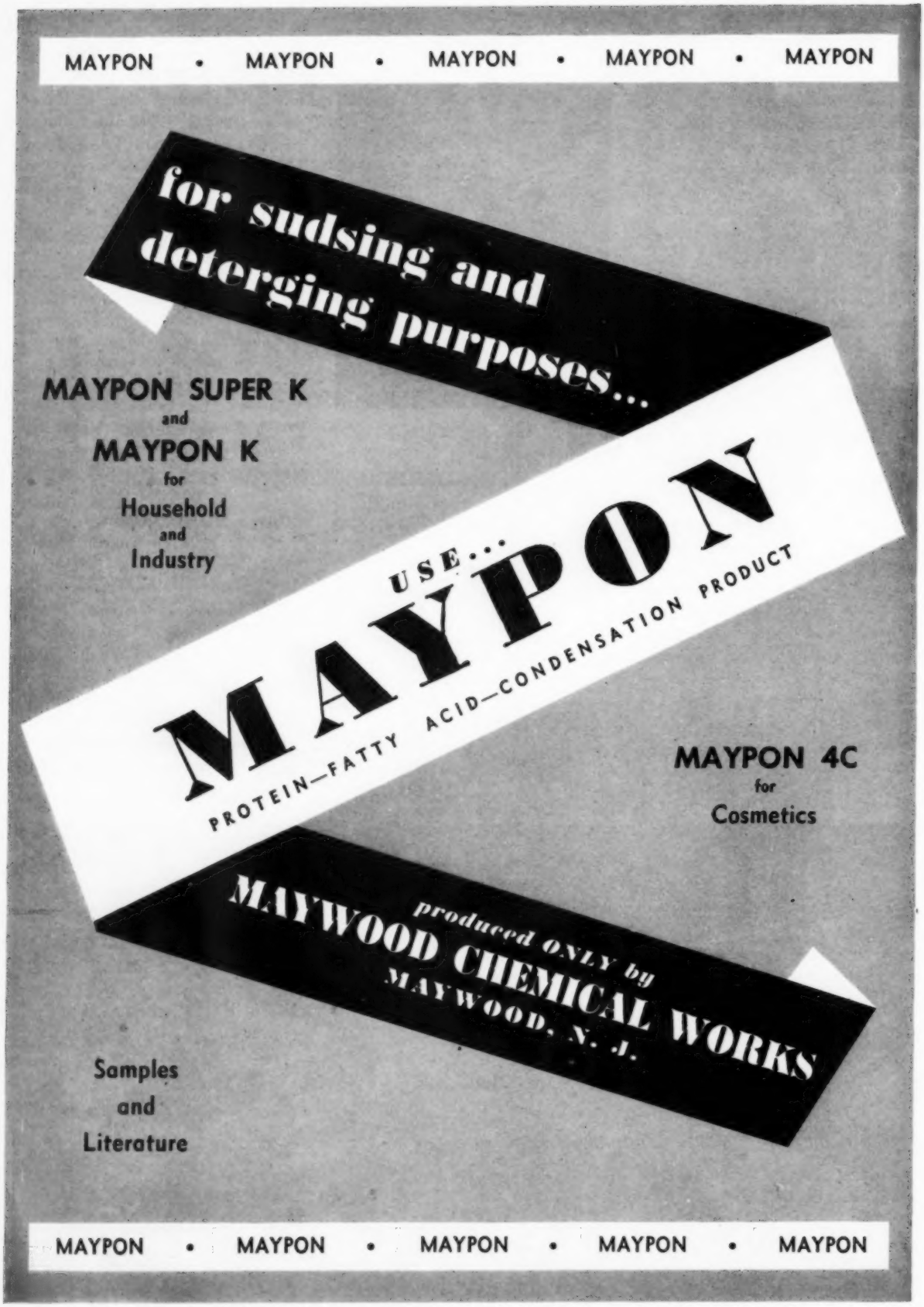
Cudahy Packing Co., Chicago, recently started construction of a new $300,000 factory in Toronto, Canada, which will double the company's production of soaps and cleaners in the Dominion. The firm's present "Old Dutch Cleanser" plant in Toronto will be disposed of upon completion of the new unit.

Nopco Soap Bulletin

A technical bulletin on its "Nopco Soap C", a low titre, water soluble soap for use in alkaline cleaning compounds, was issued recently by Nopco Chemical Co., Harrison, N. J. In addition to describing and listing the specifications of the product, the bulletin includes a number of basic formulations for alkaline cleaning compounds together with suggested uses and amounts needed for effective cleaning.



Photograph taken during luncheon at the meeting of the board of directors of the Association of American Soap & Glycerine Producers, Inc., at the Hotel Waldorf-Astoria, New York, July 26.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A.O.C.S. To Meet in Chicago, Oct. 8-10

MORE than 40 technical reports dealing with detergents, fatty acids and fat derivatives, drying oils, engineering and processing, etc., are scheduled for the 25th annual fall meeting of the American Oil Chemists' Society to be held October 8-10th at the Edgewater Beach Hotel, Chicago. Several field trips including one to the Food and Container Institute of the Quartermaster Corps, Chicago, and another to the research laboratory of S. C. Johnson & Son, Inc., Racine, Wis. are on the program. C. E. Morris, Armour and Co., Chicago, is the general chairman of the meeting.

Some of the technical papers to be presented in the detergent section are as follows:

"Detergents from Animal Fats," W .C. Ault, Eastern Regional Research Laboratory.

"Detergency Measurement, Using Artificially Soiled Clothes," F. L. Diehl and J. B. Crowe, Procter and Gamble Co., Ivorydale, O.

"Detergent Methods," J. C. Harris, Monsanto Chemical Co., St. Louis, Mo.

"Lime Soap Dispersing Powers of Synthetic Detergents," A. M. Schwartz, Harris Research Laboratories.

"Non-ionics," R. L. Mayhew, General Aniline & Film Corp., New York.

"Measurements of Foaming Power of Various Detergent Systems," G. V. Scott, Colgate-Palmolive-Peet Co., Jersey City, N. J.

"Non-ionic Surfactants Derived from a New Hydrophobic Base," Thomas H. Vaughn, Wyandotte Chemicals Corp., Wyandotte, Mich.

"Action of Chelating Compounds in Detergents," H. W. Zussman, Alrose Chemical Co., Providence, R. I.

Among other reports of interest are: "Purification of Glycerine by the Ion-exchange Process", to be presented by W. L. Hall, Lever Bros. Co., Cambridge, Mass.; "The Effect of Centrifugal Force on Continuous Vegetable Oil Refining" by Fred H. Smith, Sharples Corp., Philadelphia, Pa.; and "Continuous Deodorization of Oils in all Glass Equipment", by R. R. Allen, L. A. Van Akkeren, and R. J. Vander Wal, Armour and Co., Chicago.

Marketing Dial Shampoo

Following a test sales program in New Orleans, Dial deodorant shampoo, a companion to Armour's Dial deodorant soap, was introduced recently to the Milwaukee and Chicago market, with plans for expansion to national distribution. The Milwaukee and Chicago sales promotion program includes color advertising pages in the local newspapers, and TV breaks. The product is packaged in a plastic squeeze bottle.

Solvay Expands Plants

Expansion of its chlorine producing facilities at Hopewell, Va., and the enlargement of its Baton Rouge, La., soda ash plant were announced recently by Solvay Process Division of Allied Chemical & Dye Corp., New York. The $2,000,000 addition to the Hopewell chlorine plant will add 50 percent to its capacity. Cost of necessary buildings, equipment and facilities to expand the Baton Rouge operation will exceed $15,000,000. This figure includes the purchase of certain new equipment at the company's limestone quarry located in Prarie du Rocher, Ill., which supplies the necessary stone for the Baton Rouge plant's chemical operations. Clyde A. Kitto is manager of Solvay's Baton Rouge plant.

Warner-Hudnut Moves

Warner-Hudnut Co. has recently leased 20,000 square feet of an industrial building at 4801 Dell Ave., North Bergen, N. J., for manufacturing operations. The firm has been forced to move from the Newark Tidewater Terminal at Port Newark, due to occupancy by the Air Force.

Rhodes Co. Elects Bowe

A. G. Bowe has been elected president of James H. Rhodes & Co., Chicago, succeeding the late Elmer R. Murphey. Mr. Bowe was formerly executive vice-president of the company. William Galbally, Jr. has been elected secretary and treasurer, while William Galbally, Jr., A. D. Welton, and A. G. Bowe were elected directors.

OLIVER HULL

Hull Joins Economics

Oliver Hull, formerly in charge of production at the Jersey City, N. J., plant of Colgate-Palmolive-Peet Co., recently joined Economics Laboratory, Inc., St. Paul, Minn., as production manager. His new duties initially include the study of production problems at the Economics plant in Lyndhurst, N. J.

Florists' Award to Breck

John H. Breck, Inc., Springfield, Mass., recently received the award of the Society of American Florists for the outstanding use of flowers in an advertisement. Edward J. Breck, Jr., vice-president of Breck received the award from Robert H. Roland, executive secretary of the society, who presented it on behalf of the florists.

New Pitts. Coke Div.

Pittsburgh Coke & Chemical Co. announced recently the formation of a new fine chemicals division which will manufacture and sell a number of synthetic organic chemicals. Production facilities now under construction are located on Neville Island near Pittsburgh. The new units are expected to be in production before the end of the year.

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Proof against scarcities

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OIL BERGAMOT IMITATION, NOT NF

A first class replacement of the natural. Completely stable and free from foreign perfume notes. Excellent in soaps.

OIL GERANIUM REUNION, IMITATION

Provides the same invaluable odor qualities and blending ability as the natural. Best appreciated in the finished product.

Let us hear from you if you are interested in these or others of our famous synthetics.

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Ungerer Names Althausen

Dr. Darrell Althausen has been appointed technical director of Ungerer & Co., New York, it was announced recently by K. G. Voorhees, president. Dr. Althausen, who holds a Ph.D. in organic chemistry from the University of Illinois, is the author of numerous technical articles and papers and is co-author with Dr. Ernest Guenther of *The Essential Oils, Volume II.* Prior to his association with Ungerer, Dr. Althausen traveled widely and saw active service with the Quartermaster Corps during World War II.

DR. DARRELL ALTHAUSEN

Query Users on Package

Consumers are to be queried on the type of packaging they prefer for the liquid synthetic detergent for hand dishwashing and fine fabrics announced recently by Fels & Co., Philadelphia. The new Fels' synthetic, "Rol," will be test marketed following the decision on the package. In connection with the promotion of "Rol," Fels announced the appointment of McKee & Albright, Inc., Philadelphia as the advertising agency for the new product. "Rate holder" type advertisements are scheduled to appear in such consumer magazines as *Good Housekeeping* to promote "Rol."

Bob Felton Moves Up

Robert E. Felton, until recently Western Division manager for Felton Chemical Co. has been called to the company's main offices in Brooklyn to serve in a broader executive capacity, according to an announcement by Louis Gampert, vice-president. At the same time, Philip A. Weinrobe, Pacific Coast sales representative, has been appointed Western Division manager to succeed Mr. Felton. The company has been a leading producer of aromatic chemicals and perfuming compounds since 1923.

Manhattan Names Mark

The appointment of Henry E. Mark, Jr., as district manager in western New York state was announced recently by Manhattan Soap Co., New York. Mr. Mark joined the company as sales representative about six months ago. He makes his home at Eggertsville, N. Y.

Boston BIMS Golf Aug. 16

The August 16th outing of the BIMS of Boston is being held at Woodland Golf Club, Auburndale, Mass. The day's activities are to be climaxed by a dinner and informal gatherings. The September 12 tournament will be held at Nashua Country Club, Nashua, N. H.

Prizes at the June 20th golf tournament of the BIMS of Boston, held at Dedham Country & Polo Club, were won by the following: Thomas B. Howell, United Consumers, Inc.; Cecil W. Rice, W. J. Bush Co.; F. K. Newbert, Dennison Manufacturing Co.; David J. O'Connell, Howe & French, Inc.; Edward D. Bement, B. B. Chemical Co.; C. T. Hoye, Jr., Rexall Drug Co.; Edwin W. Martin, Mallinkcrodt Chemical Co. and E. E. Aldrich, Rexall Drug Co.

ROBERT E. FELTON

Theile, Jr., Joins Shulton

Fred C. Theile, Jr., formerly of Norda Essential Oil Co., New York, recently joined Shulton, Inc., New York, as production manager of the firm's new fine chemical division at Clifton, N. J. The new Shulton division manufactures aromatic and flavoring materials, including "Vanitrope" flavor. Mr. Theile, a chemistry graduate of Rutgers University, is the son of Fred C. Theile, Sr., who for many years headed the essential oil firm of P. R. Dreyer, Inc., New York.

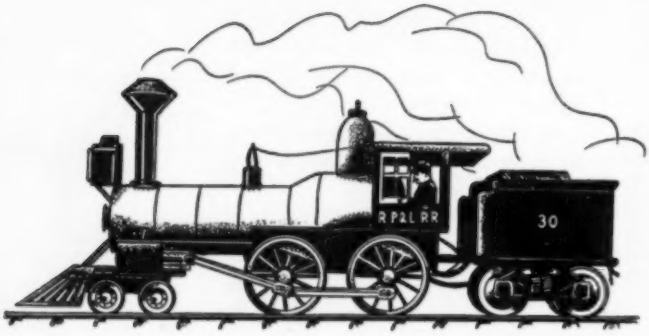
FRED C. THEILE, JR.

William F. Sherman Dies

William F. Sherman, 59, president of George E. Sherman Co., soap and dye manufacturers, of Brooklyn, died June 25 at Brooklyn Hospital. A native of Brooklyn, he was a graduate of Pratt Institute, where he took a degree in chemical engineering. He is survived by his wife, Mrs. Florence Baez Sherman; two sons, George E. and William F. Sherman, Jr., and two brothers, Edwin P. and Allen C. Sherman.

Henry C. Clark Dies

Henry C. Clark, 67, a soap salesman for Colgate-Palmolive-Peet Co., Jersey City, N. J., died at his home in Davenport, Ia., July 18. He had been with the company for 35 years, serving as Colgate's central Iowa sales representative until his retirement in 1944. He is survived by his widow, Marie; a son, Robert G., and a sister.



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Soapers have depended on WH&C ...for Raw Materials of Quality

SINCE 1838, we've been supplying the nation's "soapers" with basic raw materials.

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Lard Oil
Neatsfoot Oil
Grease
Tallow
Lanolin

FATTY ACIDS

Red Oil
Tall Oil
Stearic Acid
Hydrogenated Fatty Acid
Cottonseed and Soybean Fatty Acids
Tallow

ALKALIES

Caustic Soda, Solid, Liquid, and Flake
Soda Ash, Light and Dense
Carbonate of Potash, calcined and hydrated
Calcium Chloride
Tri Sodium Phosphate
Tetra Pyro Phosphate
Quadrafos Granular and Beads—a stable polyphosphate for water conditioning and mild but effective detergency.

SILICATE OF SODA—Liquid powdered and solid.

META SILICATE—"Metso"* Granular.

METSO* DETERGENTS—55, 66, 99.

MAYPONS—Unique surface active agents; prolific foam; high detergency and emulsifying powders; suitable for cosmetic and industrial use.

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Established 1838

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439 WEST STREET NEW YORK 14, N. Y.

Warehouses in New York and Newark, N. J.

Changes at Helene Curtis

Arthur M. Adler, plant manager of Helene Curtis Industries, Chicago, was recently named vice-president. He has been with the shampoo and toiletries firm since 1939.

Sales manager of the retail division is Leslie A. Suaers, who joined Helene Curtis recently, after having been national field sales manager of the Pepsodent division of Lever Brothers Co., New York.

Lever Reports Earnings

Lever Brothers and Unilever, Ltd., England, had net income of £10,998,350 in 1950, compared with £11,727,509 in 1949. Operating income increased to £34,123,000 from £29,-619,440. A common dividend of 13½ percent for 1950, as against 10 percent in 1949 was to have been recommended at the firm's annual meeting. The Dutch company, Lever Brothers & Unilever, N. F., paid 12 percent against eight percent for the two years. Both payments are reported to be well above optimistic estimates and prices of the stocks moved upward as a result. Combined trading gained more than 60 percent over 1949, while consolidated net, after taxes and reserves for stock values, amounted to $53,700,000, as compared with $54,-800,000 in 1949. Taxes took $79,700,-000, as against $49,000,000 in the previous year.

New Utility Cleaners

Utility Chemical Co., Paterson, N. J., announced recently the introduction of two new cleaning products to its line. They are "Hi-Tone Liquid Cleaner" and "O'Boy All Purpose Waterless Cleaner." "Hi-Tone" is a concentrated liquid detergent that is suggested for use on all types of flooring and woodwork. It may be applied by machine or hand. It is available in stadard 55, 30, 15, 5 and 2 gallon containers.

The waterless cleaner is a lanolized, paste-type product, the range of applications of which include hands, walls, metals, tile, enameled surfaces, etc. It is capable of removing paint, grease, tar, ink or other stains without the use of water. "O'Boy All-Purpose Waterless Hand Cleaner" is available in 13 ounce jars or five pound cans.

Emery Advances Colby

Vernon W. Colby has been advanced recently to the post of assistant chemical sales manager of Em-

VERNON W. COLBY

ery Industries, Inc., Cincinnati, it was announced recently. He is supplementing the activities of Robert T. Hull, also an assistant chemical sales manager, and Robert F. Brown, chemical sales manager.

Southern Alkali Expands

Construction of an $8,500,000 expansion of chlorine and caustic soda producing facilities at Natrium, W. Va., is now under way, it was announced recently by Southern Alkali Corp., wholly owned subsidiary of Pittsburgh Plate Glass Co., Pittsburgh. The building program calls for a new cell building for the production of chlorine and an addition to the caustic soda department. Original plans, which included installation of a turbo-generator for additional power supply have been discarded to speed up getting the plant into production. Although the company was originally granted a certificate of necessity by the Defense Production Administration covering 50 percent of an estimated $10,200,-000 for the plant addition, expenditures have been pared to $8,500,000 or less, according to Harry B. Higgins, president of Southern Alkali.

Directs Kolynos Advtg.

The appointment of Douglas Ballin, Jr., as advertising manager of all of its brands including "Kolynos" dentifrice was announced recently by Whitehall Pharmacal Co., New York. Mr. Ballin, who is working with Richard C. Rettig, vice-president in charge of advertising, on all advertising and sales promotion activities, has been with the firm since 1941.

New Avon Canadian Plant

A new manufacturing laboratory has been opened by Avon Products, Inc., New York, at 225 Liege St. West, Villeray Ward, Montreal, Canada, it was announced recently by John A. Ewald, president. The plant, which provides 64,000 square feet of floor space, will house laboratory and manufacturing facilities for all types of toiletries, cosmetics and allied products. Private brand manufacturing facilities have been expanded considerably. Fred Fusee is production manager of the new unit.

Dr. Arthur E. Behr Dies

Dr. Arthur H. Behr, for over 10 years associated with the aromatics division of Dow Chemical Co., Midland, Mich., until his retirement about a year ago to establish his own consulting business, died June 28 of a heart attack. He was 55 years old. Dr. Behr came to the U. S. from his native Germany in 1938 and joined Great Western Electro Chemical Co. in California as a chemist. When that organization was taken over by Dow Chemical Co. in 1939 he remained with Dow, moving to Midland, Mich., where he was engaged in developing an aromatics division. More recently he joined the Bush Aromatics Division of Dow, which was set up when Dow acquired the New York perfuming materials firm of Bush Aromatics, Inc.

New Leuders VA Member

George Amtmann of George Leuders & Co., New York recently became the forty-ninth member of the Leuders veterans organization. Mr. Amtmann is employed in the laboratory of the company.

The + in Hooker Caustic Soda *is SERVICE*

When you buy a basic chemical like caustic soda, *service* is an important factor in determining your source of supply. As a basic producer, Hooker offers you these advantages:

1. Caustic soda of high purity, low in iron and sulfates . . .

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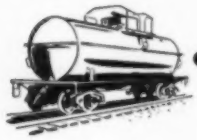

2. Modern equipment for loading and shipping to maintain that purity from our plant to the user's plant . . .

+

An experienced technical service staff to help you use and handle caustic soda.

To you this means minimum processing costs through elimination of variations in quality from shipment to shipment. To make sure that Hooker Caustic reaches you as pure as it leaves us, we coat Hooker tank cars with a special protective lining. Each car is completely insulated and equipped with a heating device to make handling and unloading uniform the year around.

\+ You can reduce processing costs further through the safe and efficient handling of caustic soda. This is where the specialized knowledge of our technical service staff can help you.

For analyses and specifications on Hooker Caustic Soda, write on your business letterhead for Technical Data Sheet No. 735.

Hooker Caustic Soda is sold in solid, flake or liquid form. Liquid is supplied in 50% and 73% concentration.

From the Salt of the Earth

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Abbott Joins Ultra

Harold E. Abbott was appointed recently as sales representative for New Jersey, New York State and

HAROLD E. ABBOTT

northeastern Pennsylvania for Ultra Chemical Works, Inc., Paterson, N. J. He is handling bulk chemicals for general industry and chemical specialties for textile processing. He has been associated with the chemical industry for almost 20 years. From 1932 until 1941 he was with the sales division of Richards Chemical Co., Jersey City, N. J.

After serving for five years with the U. S. Army Air Force, Mr. Abbott returned to found Abbott Chemical Co. in Fairlawn, N. J.

Four to Wyandotte Research

Wyandotte Chemicals Corp., Wyandotte, Mich., announced recently that four men had joined the firm to engage in various froms of research. They include Robert F. Warkow and Mario J. Cardone, who have joined the research development division. Norbert J. Kisicki, formerly of Acme Paint Co., Detroit, has joined the analytical research department and Henry Lemaire is now with the organic research department, following completion of work for a Ph.D. at California Institute of Technology. Prior to joining Wyandotte, Mr. Warkow served as assistant engineer of Water Service, research and lubrication engineer for Union Pacific Railroad. His new duties at Wyandotte will include specialization in the development of industrial cleaners with major emphasis on products for steam and diesel locomotives, freight cars, coaches and general maintenance cleaning.

Mr. Cardone was with Lindsay Light and Chemical Co. of West Chicago, before going to Wyandotte. He is working on the development and application of chemical methods of analysis for organic and inorganic products in his new post.

Yardley Sales Meetings

John F. Bales, vice-president in charge of advertising and sales of Yardley of London, Inc., New York, left July 29 to conduct a series of regional sales meetings. Accompanied by David J. Stewart, field sales manager, Mr. Bales is meeting with Yardley sales representatives at White Sulphur Springs, W. Va., July 30 and 31; at Traverse City, Mich., Aug. 2 and 3; at Pebble Beach, Calif., Aug. 6 and 7; and at Westchester Country Club, Rye, N. Y., Sept. 30 and Oct. 1.

Seifert Joins Fels

Joseph N. Seifert, formerly sales manager of M. Werk Co., Cincinnati, was appointed recently as district sales manager of the Cincinnati office of Fels & Co., Philadelphia. He has been associated with the grocery business throughout his entire business career. M. Werk was recently sold at auction, with the buildings and plant site going to Procter & Gamble Co., Cincinnati, whose plant is adjacent to that of the former Werk company.

J. H. Redding Dies

John H. Redding, 73, one time chairman of J. H. Redding Corp., New York palm oil importing firm, died July 17 at his home in Pelham, N. Y., after a six-months' illness. He had organized palm oil trading posts in West Africa and brought the oil to the United States in tankers for use in soaps, cosmetics, etc. A native of Cambridge, England, he lived in Scotland before coming to the United States in 1918. Mr. Redding was a former president of United Africa Co. He was a member of the New York Oil Trades Association.

Rudolph Visits Branches

Joseph F. Rudolph, president of Dodge & Olcott, Inc., New York, is on an extended survey of D & O

JOS. F. RUDOLPH

branches in the U. S. and Canada. Accompanied by Mrs. Rudolph, he left New York July 25 and will return about September 1 after visits to the branches in Chicago, Los Angeles, San Francisco, and Canada. His itinerary also includes a trip through the Canadian Rockies and along the West Coast.

1950 ASTM Supplements

The 1950 supplements to the Book of ASTM Standards have been issued recently and are available from the Ameircan Society for Testing Materials, 1916 Race St., Philadelphia, Pa. Part 5, on Textiles, Soap, Fuels, Petroleum, aromatic Hydrocarbons, Anti-freezes, and Water, includes the following tentative specifications: D 1111-50T, "Chip or Granular Soap for Low-Temperature Washing"; D 1112-50T, "Solid Soap for Low-Temperature Washing"; D 929-50T, "Borax"; and D 459-50, which defines terms relating to soaps and other detergents.

Davidsohn Article's Author

A. Davidsohn is the author of the article in the March, 1951 issue of *Soap, Perfumery and Cosmetics*, an abstract of which apepared under the title "Industrial Cleaning Agents" on page 83 of the June issue of *Soap & Sanitary Chemicals*.

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DOES IT add a *plus* to your profit margin?
Is the odor all it could be
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H. A. Ludlam, left, new assistant field sales manager of Lever Brothers Company, congratulates T. W. Pierce, his successor as sales manager of the New York division of the company.

Named in Lever Shifts

The advancement of H. A. Ludlam, formerly sales manager of the New York division, to the post of assistant field sales manager, and the elevation of T. W. Pierce, formerly Atlanta, Ga., divisional sales manager to the post of sales manager of the New York division, were announced recently by Lever Brothers Co., New York. Mr. Ludlam has been with the company for more than 30 years, having joined Lever as divisional sales manager in 1920. Mr. Pierce has been with the sales force since 1938, and has been in charge of the Atlanta sales division since 1948.

At about the same time it was announced that Aton W. Bondy has been made assistant media director in the Lever advertising department. He had previously been media buyer for Kenyon & Eckhardt, Inc., New York advertising agency, with wide experience in the agency field.

Increases Coupon Payments

Los Angeles Soap Co., Los Angeles, recently announced it was increasing to two cents per coupon its payment to retailers for handling the company's coupons.

Win Safety Awards

Armour & Co.'s Chicago soapworks and Swift & Co. were among 18 winners of awards for outstanding records in safe operation of their motor vehicle fleets, as made in a contest sponsored by the Greater Chicago Safety Council. Awards were conferred at banquets held during the Greater Chicago Safety Council's annual safety conference and exposition, June 4 to 7. In another industrial injury prevention contest two of the fifty awards were won by the Chicago branch of General Chemicals division of Allied Chemical & Dye Corp., New York, and by W. C. Ritchie & Co., Chicago.

Members of the committee on arrangements for this conference included Louis Otto of Lever Bros. Co., New York, and Wm. Greenlee of Victor Chemical Works, Chicago.

Among exhibitors of safety equipment and supplies at the Congress Hotel were the following: John H. Breck, Inc., Springfield, Mass., soaps and creams; Hild Floor Machine Co., Chicago, floor maintenance equipment and supplies; Walter G. Legge Co., Inc., Chicago, floor polishes, conductive coatings, etc.; Milburn Co., skin protective creams; Oil-Dri Corp. of America, oil absorbents, floor coatings, etc.; Vestal, Inc., St. Louis, antiseptic soaps, floor machines and waxes.

ANTON W. BONDY

New Soap Firm

O'Keefe Soap & Supply Co., Madison, was incorporated recently to engage in wholesaling, retailing, jobbing and manufacturing soaps, detergents, etc. 750 stock shares at $100.00 have been issued. Principals are E. A. Thomas, Roy K. Lampe, Gertrude E. Lampe, and Irene B. Thomas.

Buys Hardesty Control

A major interest in the common stock of W. C. Hardesty Co., New York, has been acquired by Novadel-Agene Corp., Belleville, N. J., it was announced recently by M. T. Tiernan, Novadel president. W. C. Hardesty Co. has plants in Dover, O., and Toronto, Canada.

New P&G Plant in Mexico

The construction of a new $3,000,000 plant for the production of "Tide" and "Dreft" synthetic detergents is now under way in Nuevo Vallejo, on the outskirts of Mexico City, it was announced recently by Procter & Gamble de Mexico, S. A. The new plant, the second of its kind in Latin America, consists of a 60,000 square-foot main plant, a two-story warehouse and shipping building and a five-story main office building. The plant will employ all-Mexican workers and will use raw materials produced in Mexico. The unit, which is expected to go into operation in July, 1952, will supply much of the Central American market as well as Mexico. The company plans to erect factories in four or five Latin American countries within the next decade, according to Eugene Gilson, who is in charge of P & G's Latin American operations.

Colgate - Palmolive - Peet Co., Jersey City, N. J., is also reported to have under consideration the construction of a detergent tower in Mexico, but details have not been revealed as yet. Tax exemptions usually granted to new industries in Mexico have not been forthcoming from the government because of reported local opposition.

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Oil Market

(*From Page* 32)

desire to withhold cattle from the market, it is impractical to do so over any extended period.

The cattle population has increased steadily since 1948, and cattle and hog slaughter in the year beginning Oct. 1, 1951 is expected to be even larger than '50, presenting a favorable tallow supply outlook for the near future.

Oil Use Shifts

SEVERAL oils which played an important part in the soap industry fat supply picture in the mid '30s, have become of minor importance in recent years. Palm oil, palm kernel oil, inedible olive oil, olive foots, fish oil and whale oil are the most prominent in this group. Whereas the reported consumption of palm oil in soap averaged 100 million pounds annually in the period 1936-'41, only one million pounds were reported so used in 1949 and in 1950. Since World War II, babassu oil has partially replaced palm kernel oil, although coconut oil is still the most important oil for soap in the quick lathering class. The use of inedible olive oil and foots in soap has dropped from an average of 20 million pounds per year before World War II, to three million pounds in 1950; the use of whale oil for soap, which averaged 25 million pounds annually in '39-'42, dropped to a few thousand pounds annually during and since the war, and has not given any evidence of resuming its pre-war importance. As a conservation measure, world production of whale oil has been limited to 60 per cent of its pre-war quota by the International Whaling Agreement.

The general market situation indicates no shortage of oils required by the soap industry, although supplies are expected to remain tight for the balance of the year. Production of copra and coconut oil in the Philippines, Malaya, Indonesia and Ceylon, which are the major supply areas, is expected to be at least equal to last year's total. Typhoons in the Islands earlier this spring are reported to have reduced the expected large 1951 harvest, which is not expected to go below the 1950 level. Total imports of coconut oil in 1950 were 137.7 million pounds, as compared with 107.8 million in 1949.

January to March 1951 imports of babassu oil, castor oil, oiticica oil, olive and palm oil, also show an increase over the comparative period in 1950. The 1950 production of olive oil in Spain, Italy, and Greece was 40 per cent lower than in 1949. However the reduced output from these sources is of little practical interest, since the use of olive oil foots in soap has dropped so sharply. The large 1951 crop of U. S. cotton, from which cottonseed oil is derived, is expected to be some 65 per cent bigger than last year's harvest.

Soap Fat Use Drops

AS INDICATED earlier, fat and oil consumption by the soap industry has decreased in the past two years, due to increased consumption and production of synthetic detergents, thus reducing the strain on the oil market. Whereas combined soap-detergent civilian consumption averaged about 30 pounds per capita, in 1950, and 27 pounds in 1949, the 1950 figure includes 8 pounds of synthetic detergent. Actual soap per capita use in 1950 would thereby seem to be the lowest for any year since 1921. It is pointed out, however, that the comparatively limited supplies of non-fat raw materials such as benzene and sulfuric acid, used in the production of synthetic detergents, may prevent a further sharp increase over the next year or so in the output of synthetics. On the other hand new, large synthetic detergent plants are coming into production.

Reduced production of soap obviously means less glycerine, which is one of the by-products in the manufacture of soap, fatty alcohols and the splitting of fats. However, the supply of by-product glycerine is supplemented by synthetic glycerine, and glycerine imports, which unfortunately have been limited this year due to increased European needs, thus reducing the amount available for U. S. needs. Recently expanded facilities in the U. S. for the production of synthetic glycerine indicate an expected increase of from 35 to 50 million pounds per year in 1951. Statistics issued by the Dept. of Commerce reveal that glycerine production, calculated as 100 per cent crude glycerine, reached a total of about 66,340,000 pounds for the first quarter of 1951, representing an increase of well over 11 million pounds or about 21 per cent over production during the same period last year. Consumption of glycerine for the first quarter is reported at 52,674,000 pounds, an increase of 10 per cent over last year's first three months.

Glycerine has been in tight supply this year, due in part to loss of imports from the Argentine, estimated at approximately 300 tons a month. Better prices by European buyers on Argentine crude, diverted the supplies from this source, and very little was shipped to the U. S. until early in July. A current offering of approximately 100 tons of crude glycerine from the Argentine at a price of 41c a pound is noted. The offering is regarded by some as an indication that European requirements have been satisfied fairly well for the present.

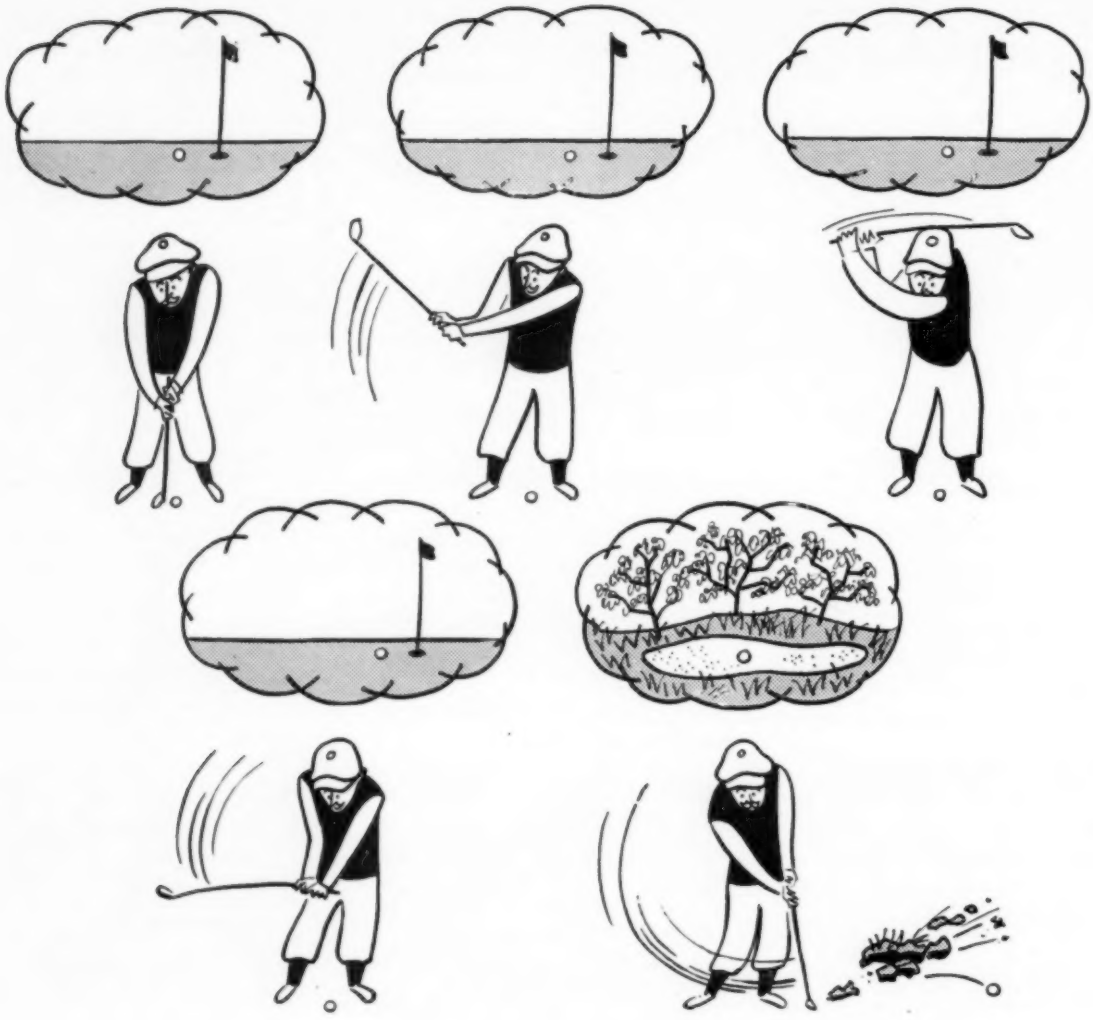
Sanitizers

(*From Page* 39)

vide valuable information concerning the effectiveness of various detergent sanitizers.

Such data have been made available in technical publications, manufacturers' literature and patent specifications. From the latter source comes the frequently mentioned DuBois(26) formula, which consists of:

	parts
Sodium carbonate	45.0
Tetrasodium pyrophosphate	45.0
Nona-ethylene glycol mono ester of soya bean fatty acids	6.3
Oleyl dimethyl ethyl ammonium bromide	3.0



Think a stroke ahead

We got that from an old duffer we know.
He'd say, "If you want to get some place on a course
you've got to know where you want to go.
And that takes thinking ahead."

And when your production capacity hinges on
process materials like soda ash, we think it makes sense
to think ahead about a reliable source of supply.

If we can't sell you any soda ash now,
it's because we're serving our customers of record.
But we'll be glad to "think a stroke ahead" with you.
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CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE
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The quaternary and the non-ionic detergent are mixed together and heated to form a thin fluid which is then added slowly to the powdered alkaline salts with thorough mixing. The final material is a free-flowing powder, which in a one per cent concentration, forms a product useful in the dairy industry, for dishwashing and for other purposes where both sanitizing and cleansing action is desired, including use on textiles, such as linens, hosiery and others.

As a result of the studies made by Dahlberg and his associates(25) the following formula was developed. Known as Cornell sanitizing powder, this product consists of:

	per cent
Trisodium phosphate	30.0
Tetrasodium pyrophosphate	30.0
Soda ash	26.0
Non-ionic detergent (Triton X-100*)	7.0
Quaternary ammonium compound (Hyamine 1622*)	7.0

*Rohm & Haas Co., Philadelphia, Pa.

In their work on compounds for use in dairy barns, this product proved to be a satisfactory detergent sanitizer for both cleaning and sterilizing. Readily soluble and used in a concentration of one ounce per three gallons of water, the solution of this powder had a pH of 10.5 and was easy on the hands. It cleaned well as a solvent and by brushing.

In a series of comparative tests, Goetchius and Botwright(11) found that a similar formula gave the most effective action. This was prepared from:

	per cent
Hyamine 1622	10.0
Triton X-100	5.0
Sodium metasilicate	30.0
Tetrasodium pyrophosphate	55.0

In formulating these products, the investigators were chiefly interested in dairy sanitation. The earlier work of Guiteras and Shapiro,(27) however, was concerned primarily with the formulation of products suitable for use in cleaning and sanitizing eating utensils. Following tests on a number of preparations, it was found that the following was the most effective when used at the rate of one ounce per gallon:

	parts
Trisodium phosphate	50
Sodium bicarbonate	50
Tetrasodium pyrophosphate	25
Rodicide A	6

The "Rodicide A" (Rhodes Chemical Co., Plainfield, N. J.) consists of a mixture of a quaternary ammonium compound and a non-ionic detergent.

A modified preparation made along the lines recommended by these workers is given by Smith(28) as follows:

	parts
Trisodium phosphate	50
Sodium sesquicarbonate, or carbonate	20
Sodium metasilicate	5
Tetrasodium phosphate	25
Quaternary ammonium compound	3
Non-ionic surface active agent	2

Other sources, notably the literature of manufacturers of quaternaries and non-ionics, provide additional formulas for making detergent sanitizers. Although most of these formulations are not accompanied by indicative test data, their sources may be taken as an index of their worth and effectiveness. One manufacturer, for example, suggests that a detergent sanitizer be made along the following lines:

	per cent
Non-ionic detergent (Renex*)	5.0
Quaternary ammonium compound	10.0
Tetrasodium pyrophosphate	55.0
Soda ash	30.0

*Atlas Powder Co., Wilmington, Del.

Of interest is Barber's(29) suggestion that an antiseptic type of shampoo, containing this non-ionic, may be made from:

	per cent
Renex	4.0
Cetyl benzyl dimethyl ammonium bromide	12.0
Water	84.0
Perfume	sufficient

Another leading detergent supplier's literature suggests a formulation for a liquid detergent sanitizer as follows:

	per cent
Non-ionic (Antarox A-180*)	10.9
Lauryl dimethyl benzyl ammonium chloride (50%)	20.0
Trisodium phosphate	2.8
Water	66.3

*Antara Products, New York, N. Y.

It is said that excellent results are obtained with one ounce of this solution in five gallons of water.

Formulas for both liquid and dry, powdered detergent sanitizers are given by a manufacturer of both non-ionics and quaternaries. Thus, a liquid product may be made from:

	lb.
Quaternary (Arquad S*)	0.7
Soda ash	0.5
Sodium tripolyphosphate	0.5
Non-ionic (Ethofat 242/25*)	1.3
	gal.
Water	100.0

*Armour & Co., Chicago, Ill.

A dry powdered mixture is produced from:

	per cent
Arquad S	5.0
Ethofat 242/25	7.5
Sodium carbonate	20.0
Trisodium phosphate	10.0
Tetrasodium pyrophosphate	57.5

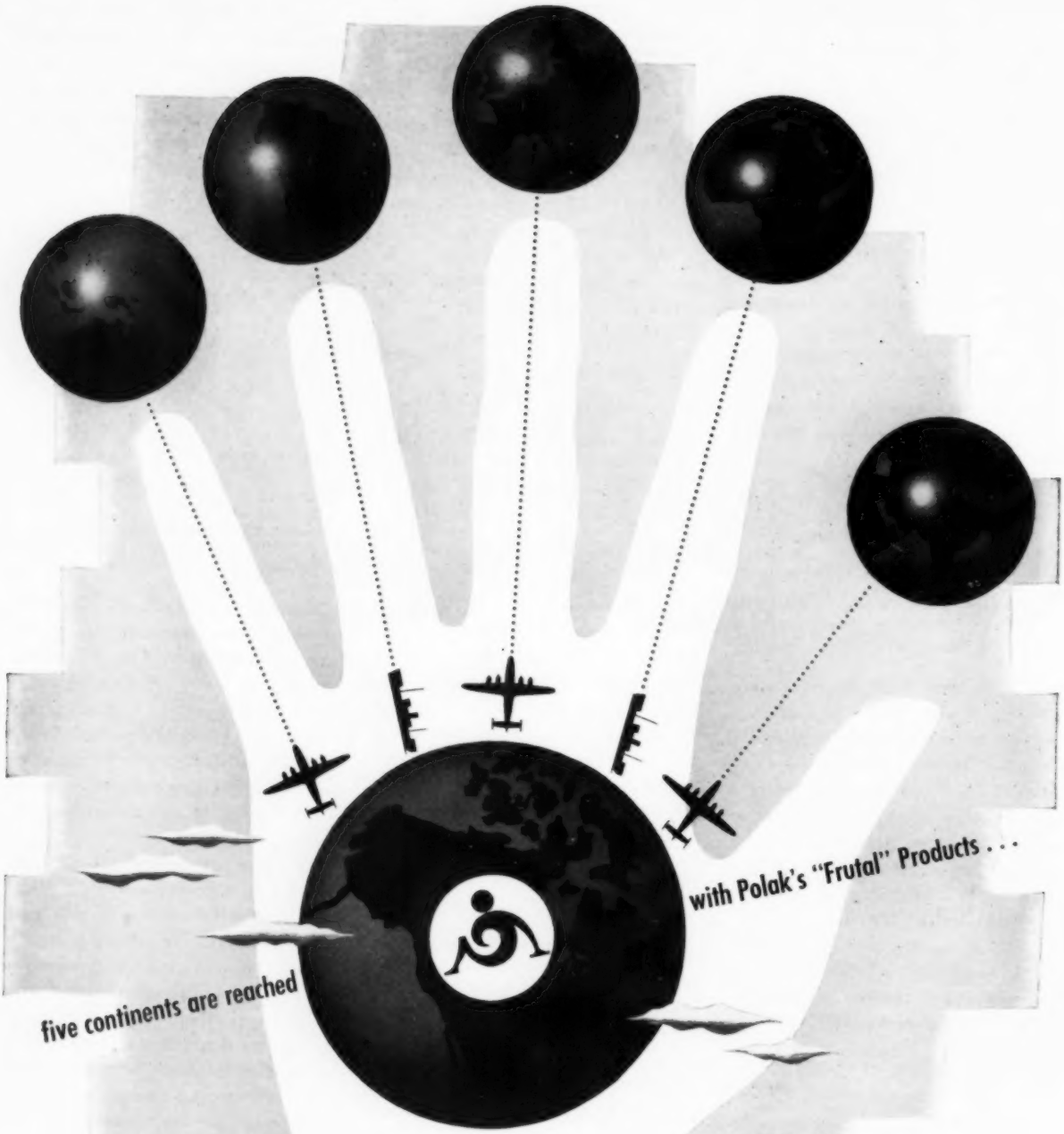
The manufacturer's literature states that this compound can be used in concentrations of from 0.5 to 1.0 per cent in water for cleaning food-handling equipment, hospital equipment, and laboratory animal cages. It is advised that caution be taken to prevent the concentrated solution from coming in direct contact with food.

The patent literature also presents a number of interesting variations in the formulation of detergent sanitizers. One of these, a British patent(30) covering the production of germicidal detergents, claims that a high level of anti-bacterial efficiency as well as detergency is shown by a mixture of an anionic detergent (alkyl aryl sulfonate), a cationic quaternary ammonium germicide, and a non-ionic detergent containing a polyglycol ether group. Very noteworthy is the statement that this non-ionic agent is added to overcome the incompatibilities of the anionic and cationic components.

Products Without Non-ionics

IN OTHER patented preparations, non-ionics are omitted; the detergent action being supplied by inorganic alkaline detergents. In one case, Bersworth (31) describes products con-

(*Continued on Page* 98)



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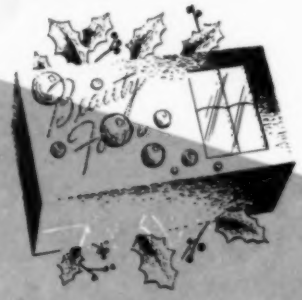

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THE following trade marks are published in compliance with section 13 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

Hyetest—This for tincture of green soap and antiseptic solution. Filed Oct. 4, 1948 by Northwest Drug Co., Minneapolis. Claims use since Nov. 1, 1926.

Pure—This for spot remover, automobile cleaner, etc. Filed Aug. 13, 1948 by Pure Oil Co., Chicago. Claims use since Jan. 1, 1936.

Arwax—This for microcrystalline waxes. Filed Sept. 19, 1950 by American Resinous Chemicals Corp., Peabody, Mass. Claims use since Aug. 1, 1947.

Aroseptin — This for organic chemical germicide. Filed Sept. 22, 1950 by Chagrin Falls Chemicals, Inc., Chagrin Falls, O. Claims use since Aug. 21, 1950.

Pheneen — This for germicidal solution. Filed Aug. 10, 1950 by Ulmer Pharmacal Co., Minneapolis. Claims use since Dec. 5, 1939.

Penident—This for dentifrice. Filed July 15, 1950 by Whitehall Pharmacal Co., New York. Claims use since July 7, 1950.

Sanadyne — This for concentrated chemical compound in capsule form containing blends of wetting elements for sanitary cleaning and washing. Filed Jan. 6, 1950 by Aquadyne Corp., New York. Claims use since Nov. 16, 1949.

Lusterize—This for polish and polishing preparations for automobiles. Filed Oct. 14, 1949 by R. M. Hollingshead Corp., Camden, N. J. Claims use since Sept. 1, 1923.

Brilliantine — This for piano and furniture polish. Filed Nov. 1, 1949 by American Piano Corp., New York. Claims use since Oct. 10, 1949.

Claytonia — This for shoe polish. Filed Aug. 14, 1950 by Sigma Chemical Co., St. Louis. Claims use since July 15, 1950.

Safe-Lex—This for insecticide. Filed July 22, 1949 by Bostwick Laboratories, Inc., Bridgeport, Conn. Claims use since Mar. 1, 1949.

L-M-S—This for moth spray and moth crystals. Filed Oct. 10, 1950 by Lux Research Laboratories. Claims use since Sept. 30, 1950.

Flintcote—This for soap for wire drawing. Filed Sept. 13, 1949 by Armour & Co., Chicago. Claims use since Feb. 7, 1946.

Noxall — This for preparation for treatment of athlete's foot. Filed Dec. 15, 1948 by Noxall Pharmacal Co., New York. Claims use since January, 1926.

Pink Magic—This for cleansing products for washing dishes by washing machines. Filed May 10, 1948 by S & S Soap Co., New York. Claims use since May 5, 1947.

Jelso — This for all-purpose cleanser having deodorizing and disinfecting properties. Filed Jan. 8, 1949 by Junice Laboratories, Clifton, N. J. Claims use since Nov. 1, 1948.

Krew — This for soap. Filed Nov. 4, 1949 by M. Werk Co., St. Bernard, O. Claims use since Oct. 31, 1947.

Haz — This for liquid soap. Filed June 9, 1950 by Banfree Products Co., Wellsville, N. Y. Claims use since Mar. 30, 1950.

Glo Chrome — This for metal polish. Filed Jan. 24, 1948 by Hefco Laboratories, Inc., Detroit. Claims use since Apr. 15, 1947.

Top-Flight—This for bowling alley cleaner and polish. Filed May 28, 1948 by Berry Brothers, Inc., Chicago. Claims use since Feb. 1, 1939.

Kare — This for floor waxes. Filed July 30, 1949 by Windsor Wax Co., Hoboken, N. J. Claims use since Jan. 13, 1947.

Silikar — This for automobile body polish. Filed Apr. 15, 1950 by Karseal Corp., Los Angeles. Claims use since Feb. 8, 1949.

Lib—This for liquid wax. Filed May 24, 1950 by Beacon Co., Boston. Claims use since Apr. 8, 1950.

Skidoo — This for insecticides. Filed May 12, 1948 by M. H. Jacobs, Inc., Chicago. Claims use since Mar. 8, 1948.

d-con—This for rodent poison. Filed Sept. 15, 1950 by D-Con, Inc., Chicago. Claims use since Aug. 16, 1950.

Sterlox—This for surface active compositions for use as detergents. Filed May 6, 1949 by Monsanto Chemical Co., St. Louis. Claims use since Apr. 22, 1949.

Balloon—This for soap. Filed July 12, 1949 by Armour and Co., Chicago. Claims use since May 16, 1949.

Brush Top—This for cleansing fluids for the removal of spots, etc. from fabrics and the like. Filed Nov. 29, 1949 by Products Packaging, Inc., Cleveland. Claims use since 1938.

Arex—This for surgical cleanser for metal, glass or rubber. Filed June 16, 1950 by Will Ross, Inc., Milwaukee. Claims use since May 31, 1950.

Jumbo's—This for bubble bath. Filed Nov. 16, 1950 by Schratz Products, Detroit. Claims use since Oct. 1, 1950.

Shell—This for furniture polish. Filed Apr. 12, 1948 by Shell Oil Co., New York. Claims use since Feb. 25, 1947.

Quick Wick—This for household deodorant. Filed Sept. 5, 1950 by Ross Laboratories, Los Angeles. Claims use since Aug. 1, 1950.

Warfarat—This for rodenticide. Filed Sept. 19, 1950 by Dr. Hess & Clark, Inc., Ashland, O. Claims use since Aug. 31, 1950.

FMG — This for insecticides. Filed Oct. 11, 1950 by Frank's Market Garden, Springfield, Mass. Claims use since Aug. 1, 1950.

$1000.00 Guaranteed—This for cleaning and polishing preparation. Filed Oct. 28, 1948 by B. Heller & Co., Chicago. Claims use since Jan. 15, 1905.

Z-4—This for liquid metal polish. Filed Aug. 2, 1949 by U. S. Chemical & Supply Co., Kansas City, Mo. Claims use since Jan. 1, 1946.

Dolanize—This for self-polishing floor wax. Filed June 19, 1950 by Wilbert Products Co., New York. Claims use since Jan. 23, 1950.

Finish Feeder—This for furniture polish. Filed July 12, 1950 by Custom Furniture Finishers Guild, Washington, D. C. Claims use since Mar. 17, 1950.

Speedi-Dri — This for floor cleaning compounds. Filed Nov. 30, 1948 by Refiners Lubricating Co., Philadelphia. Claims use since May 19, 1941.

Camp—This for chemical compound for cleaning and conditioning cesspools. Filed May 19, 1949 by Camp Chemical Co., Brooklyn. Claims use since Mar. 1, 1947.

Niagrol—This for parasiticides. Filed May 19, 1949 by Food Machinery and Chemical Corp., San Jose, Calif. Claims use since May 19, 1936.

Mark 4—This for germicide. Filed June 3, 1949 by Mark Laboratories, Inc., Pittsburgh. Claims use since May 20, 1933.

Ster-Bac—This for quaternary ammonium sanitizers. Filed Aug. 5, 1949 by Klenzade Products, Inc., Beloit, Wis. Claims use since Mar. 15, 1946.

Sulfasan—This for insecticides. Filed Sept. 19, 1949 by Monsanto Chemical Co., St. Louis. Claims use since Feb. 11, 1949.

Entoseal—This for insecticidal liquid for impregnating cloth, paper, and similar containers for foodstuffs. Filed Sept. 26, 1949 by McLaughlin Gormley King Co., Minneapolis. Claims use since Aug. 26, 1949.

Miri-kill—This for insecticides. Filed Feb. 1, 1950 by Community Exterminating Corp., New York. Claims use since Nov. 8, 1949.

American Distilled Oils

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CLOVE	BALSAM PERU	OPOPONAX
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BIDS AND AWARDS

F.S.S. Award to Capital

The Federal Supply Service, Washington, D. C., award on an unspecified quantity of sweeping compound, in connection with a recent opening for miscellaneous supplies, went to the Capitol Soap Corp., Paterson, N. J., with its bid of 3 cents a pound on item 51-C-1624.

Dishwashing Compound

The award on an unspecified quantity of dishwashing compound in a recent opening for miscellaneous supplies by the Federal Supply Service, Washington, D. C., went to Roberts-Modaber, Inc., with bids of 9.3 cents a lb. on item 51-C-1576-15, and 8.85 cents on 175.

Soap Powder Awards

The following awards on an unspecified quantity of hand scouring, mechanics soap powder, were announced by the Army Quartermaster Supply Corps, Washington, D. C., in a recent opening for miscellaneous supplies: Murro Chemical Co., New York; and Newport Soap Co., Div. of Salem Commodities, Oakland, Calif.

Floor Wax Bids

Low bids on an uspecified quantity of floor wax in a recent opening for miscellaneous supplies by the Federal Supply Service, Washington, D. C., were submitted by the following: R. M. Hollingshead Corp., Camden, N. J., item 1, 72 cents a gal.; item 2, 64 cents; item 3, 29 cents lb., bidding all or none; William F. Gable Co., Altoona, Pa., item 1, 88.7 cents a gal.; item 2, 88.7 cents; Puritan Chemical Co., N.W. Atlanta, 1 per cent, item 1, 83 cents a gal.; item 2, 74 cents; item 3, 18.9 cents lb.; American Wax Co., College Point, N. Y., item 1, 64 cents a gal.; Kem Products Corp., Brooklyn, N. Y., ½ per cent, item 1, 60 cents; item 2, 65 cents; Abco, Inc., McKeesport, Pa., item 1, 82 cents a gal.; item 2, 76 cents; item 3, 18.5 cents a lb.; Oil Specialties & Refining Co., Brooklyn, items 1 & 2, 75 cents, item 3, 17 cents lb.; Windsor Wax Co., Hoboken, N. J., item 1, 74.5 cents a gal.; item 2, 69.5 cents; Buckingham Wax Co., Long Island City, N. Y., 1 per cent; item 1, 63.9 cents a gal.; item 2, 62.9 cents; item 3, 15.9 cents a lb.

Laundry Sour Award

Johnson Chemical Industries, Baltimore, received the award on an unspecified quantity of laundry sour and blue with a bid of 13.06 cents on item 134, in a recent opening for miscellaneous supplies by the Veterans Adm., Procurement Div., Washington, D. C.

Arsenal Supply Awards

The following awards on an unspecified quantity of vapor cleaning compound were announced for the Raritan Arsenal, Raritan, N. J., in a recent opening for miscellaneous supplies: Clayton Mfg. Co., El Monte, Calif., items 4 and 6, with a bid of $39,390; Turco Products, Los Angeles, items 3 and 5, with a bid of $38,040; and Wyandotte Chemicals Corp., Wyandotte, Mich., items 1 and 2, with a bid of $33,375.

F.S.S. Disinfectant Award

Universal Chemical Co., Boston, received the award on an unspecified quantity of disinfectant with bids of 55 cents a gallon on item 51-D-395-10, 45 cents on item 2, and 38 cents on item 3, in a recent opening for miscellaneous supplies by the Federal Supply Service, Washington, D. C.

P.O.D. Soap Bids

Low bids on 30,000 pounds of laundry soap in a recent opening for miscellaneous supplies by the Post Office Dept., Washington, D. C., were submitted by the following: Pioneer Soap Co., fob San Francisco, 8.3 cents; Gillam Soap Works, fob Fort Worth, 8.25 cents; Armour & Co., fob Chicago, 8.3 cents; Standard Soap Co., of Camden, 1 per cent, 8.5 cents; Tennessee Soap Co., fob Memphis, 7.66 cents; and Peck's Products Co., 1 per cent, fob St. Louis, 8.5 cents.

Scouring Powder Bids

The following low bids on 15,000 pounds of scouring powder were received in a recent opening for miscellaneous supplies by the Post Office Dept., Washington, D. C.: National Milling & Chemical Co., Philadelphia, 4.3 cents; General Soap Co., Chicago, 4.75 cents; Imperial Provident Co., Philadelphia, 4.3 cents; and Marjo Products Co., Chicago, 5 cents.

Surgical Soap Bids

The following bids on an unspecified quantity of liquid surgical soap were received in a recent opening for miscellaneous supplies by the Armed Services Medical Procurement Agency, Brooklyn, N. Y.: Davies Young Soap Co., Dayton, O., $1.70; Harley Soap Co., Philadelphia, $1.35; and Retort Pharmacal Co., Long Island City, $1.54. In each of the above cases, prices quoted are for delivery at place of origin.

Misc. P.O.D. Bids

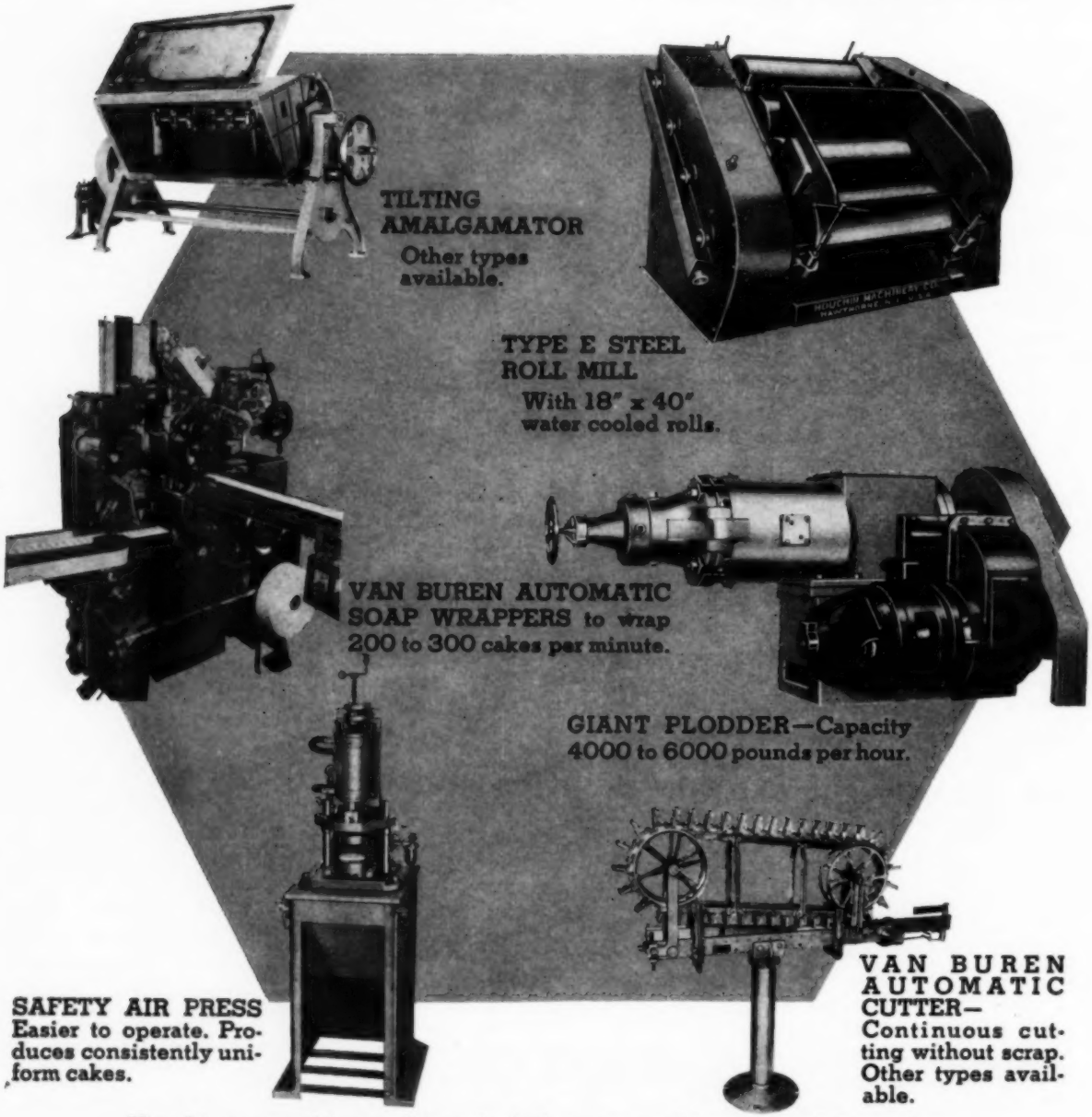
Low bids on 50,000 pounds of sweeping compound in a recent opening for miscellaneous supplies by the Post Office Dept., Washington, D. C., were received from the following: H. Watson Phillips, fob Rome, Ga., $1.70 a hundred weight; Capitol Floor Sweep Mfg. Co., fob Austin, Tex., 1.5 cents a pound; and United Chemical Co., fob Asheville, N. C., 1.97 cents a pound.

Purex Declares Dividends

A special 25 per cent stock dividend and a cash dividend of 15 cents were declared recently by the directors of Purex Corp., South Gate, Calif., detergent manufacturing firm. The stock dividend was payable June 14 to stock of record June 1 and the cash dividend on June 30 to stock of record June 15.

6 MACHINES IMPORTANT IN—

SOAP MAKING



TILTING AMALGAMATOR
Other types available.

TYPE E STEEL ROLL MILL
With 18" x 40" water cooled rolls.

VAN BUREN AUTOMATIC SOAP WRAPPERS to wrap 200 to 300 cakes per minute.

GIANT PLODDER—Capacity 4000 to 6000 pounds per hour.

SAFETY AIR PRESS
Easier to operate. Produces consistently uniform cakes.

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Continuous cutting without scrap. Other types available.

Houchin soap making machines include every machine required for modern soap manufacture. Available individually or in complete production ranges.

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Manufacturers of Soap Making Machinery for over Three-Quarters of a Century

PRODUCTION SECTION

Built Detergent Performance

Built detergent of specified composition has greater detergent power than that of fatty acid soaps, both laboratory and practical washing tests show. Grease removal better with detergent.

THE influence of several factors on built heavy duty detergents was analyzed in a series of tests using a secondary alkyl sulfate ("Teepol", a product of Shell Chemicals, Ltd.) as the active organic material. The effects investigated included: pH; water hardness; use of builders; and use of additives such as bleaching agents, dirt suspending agents, and fillers. Comparative washing tests of a built detergent of specified composition and soap products indicated that the detergent power of the synthetic was better than that of fatty acid soaps. Laboratory and practical washing tests showed similar results in this respect. Grease was removed more effectively with the built detergent, while albumin (blood cocoa) was removed more effectively with soap.

Cambric fabric test cloth was soiled with a medium consisting of "Pelikan" India ink, olive oil emulsion and tragacanth thickener. Samples were washed in a laboratory washing machine, and detergent power shown by whiteness values, measured photometrically before and after washing. In the laboratory washing tests the proportion of liquor was about 1:200, in practice it is about 1:5. The detergent to dry wash ratio was about 1:1 in the laboratory, and 1:100 in practice. Considerable difference was noted in the mechanical effect of pounding or beating in laboratory washing methods, as compared with the effect resulting in practical washing. It was found that laboratory soiling does not correspond to the complex methods encountered in practice. The above factors are to be considered in the analysis of laboratory washing tests.

The influence of water hardness and pH on detergency have been identified in other tests. A high pH is recognized as causing swelling of cellulose fibers. It also brings about a displacement of the electrostatic charges on the fabric, favoring soil removal. An optimum detergency effect is obtained at pH values of 9.5 to 10.5. Laboratory tests with unbuilt "Teepol", varying water hardness and pH, confirmed the theory that detergent power of synthetic products, which are stable in hard water, decreases, as the hardness increases. Increasing the pH raises the detergent power considerably.

The detergent power of several additives frequently used as builders, such as sodium metasilicate sodium carbonate, trisodium phosphate, tetrasodium pyrophosphate, sodium tripolyphosphate, sodium hexametaphosphate, and caustic soda solution, was studied. An effort was made to determine whether these were effective by virtue of their power of softening water and increasing pH values, or whether they contributed specifically to an increase in detergency. The condensed phosphates in general, and a mixture of pyro/tripolyphosphate (1:1), were found to improve the detergent effect to an extent which could not be explained by the increase in pH value and water softening.

Increasing the concentration of oxygen bleaching agents added to the synthetic detergent, improved detergent effect. Sodium perborate was found to be a little more effective than metasilicate and waterglass. The ratio of 1:0.5 is suggested. The favorable effects of optical bleaching agents, and carboxy methylcellulose in improving detergent power recommend their use in building detergents. From a practical point of view, only sodium sulfate of a high degree of purity should be considered as a filler.

The following composition was prepared as a heavy duty detergent on the basis of the tests and studies performed:

	per cent
Teepol	10.00
pyrophosphate	7.50
tripolyphosphate	7.50
perborate	5.00
metasilicate	5.00
carboxymethylcellulose	1.00
optical bleaching agent	.01
calcined sodium sulfate	63.99

A comparison of the washing performance of the above composition with soap products indicated that the built detergent gave better washing results than soap in the laboratory. Practical tests showed at least an equivalent degree of efficiency. In the case of greasy washing, the "Teepol" composition was found to be more effective. The built detergent was

MAXIMUM MECHANIZATION

is inflation's strongest foe!

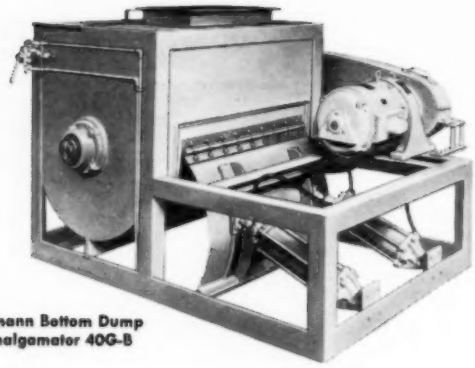
ONE of the principal weapons of the manufacturer in combating inflation is an increase in his own production. To obtain this increase in the face of the manpower shortage, calls for maximum mechanization of manufacturing processes.

Much machinery in use today is badly out of date and should be replaced. A considerable amount of equipment, also, while not obsolete in design, is badly in need of a factory reconditioning job.

Examine your soap finishing machines and try to estimate the amount of additional production you could obtain through replacement or reconditioning of various units. The more mechanization, the less inflation.

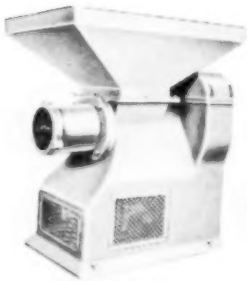
Send for descriptive bulletin of any machine shown here.

To help assure prompt service where factory reconditioning is involved, we suggest you anticipate your needs and advise us in advance to permit pre-scheduling of your requirements.

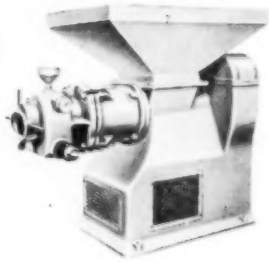


Lehmann Bottom Dump Amalgamator 40G-B

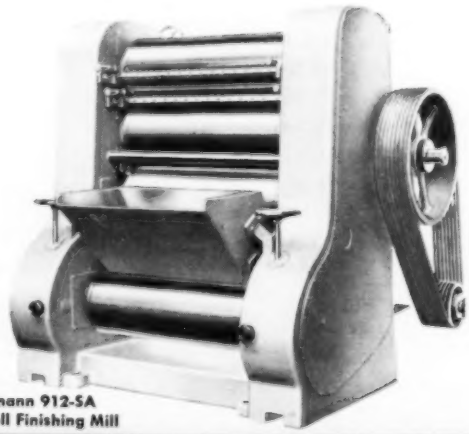
Lehmann 924-SA Four Roll Roughing Mill



Lehmann 310-P Preliminary Plodder



Lehmann 310-F Finishing Plodder



Lehmann 912-SA Five Roll Finishing Mill

LEHMANN

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MAIN OFFICE AND FACTORY: 548 NEW YORK AVE., LYNDHURST, N. J.

found to foam copiously even at low temperatures and with badly soiled wash. An interesting feature of the test is that the wash liquor has no "feel" of grease, where the built detergent is the cleaning agent. This was true even when the material washed contained a lot of grease. In this it differed from washing results with soap powder as the washing agent. H. Stupel and A. von Segesser *Soap, Perfumery and Cosmetics* 24, No. 6, 558-565 (1951).

Evaluation of Detergents

A SERIES of tests on about 100 commercial detergents to determine and compare the various criteria or factors of detergency with the results of a previously developed washing performance test for dishes and utensils indicated that: (1) no single factor of detergency can be used to judge washing performance of the detergent; (2) if the detergent is classified as a soap, surfactant, alkaline, or combined detergent, a comparison of certain pertinent detergency factors will permit prediction of the washing performance of a large percentage of detergents; and (3) with present knowledge, a washing performance test is the only reliable method for evaluating the dishwashing performance of detergents.

Detergents used in the test were collected at random as manufacturers' samples or bought in the retail market. They were classified as soaps or soap mixtures, alkaline detergents and buffers, surface active agents, and combinations of these. Performance tests were applied to glass panels dipped in a standard soil solution, drained and baked under controlled standard conditions. Soil removal was determined on the basis of light reflectance, and measured by a photometer. Besides the analysis of washing performance, the following determinations were made: (1) phenolphthalein and total alkalinity, (2) surface tension of a .3 per cent solution in distilled water; (3) interfacial tension between a .3 per cent solution and mineral and cottonseed oils; (4) emulsifying ability of a .3 per cent solution for mineral and cottonseed oils; (5) pH of a .3 solution; and (6) sequestering ability.

The washing performance tests were not sufficiently reproducible to permit classification of the detergents. Some of the detergents showed considerable deviation in performance in the series of four runs for each product. In the case of combined detergents, determinations of pH, total alkalinity, surface tension, interfacial tension and emulsification were significant factors in evaluating the efficiency of the product. With soaps, low alkalinity indicates poor detergency, but increasing amounts of phenolphthalein and total alkalinity indicate decreasing efficiency. An increase in alkalinity and minor increases in surface tension tend to decrease the efficiency of alkaline detergents and buffers. Very high or low pH values also decrease the efficiencies of alkaline detergents. In the case of the surface active agents, an increase in interfacial tension and good emulsification indicate a good surfactant.

It was found that the combined detergents and the alkaline detergents could be modified by certain additions to obtain the desired detergency characteristics of excellent detergents. Of 22 combined detergents, rated as less than excellent on the basis of washing performance and then modified by the addition of a nonionic wetting agent, an alkaline agent and/or a buffer salt, 86.7 per cent gave improved washing performance. However, fair or poor combined detergents were improved only slightly on modification; and some products rated as poor gave no indication of improved washing performance even under drastic modifications. The alkaline agents classified as fair by performance were modified by adding a nonionic wetting agent to change their characteristics to excellent.

Analysis of the requirements of a satisfactory dish and glass cleaner indicate that the product must have the ability to remove soil, and prevent it from redepositing. The factors of detergency may be broken down into: (1) dissolving power, measured by alkalinity factors; (2) wetting ability, measured by surface activity factors; and (3) rinsability. In modifying some of the detergents, washing performance was improved by changing the alkalinity and/or surface activity . . . in other cases, performance was not improved. Again, in correlating washing performance with alkalinity and wetting ability, a satisfactory comparison was obtained in the data of some compounds, but showed no consistent relation in others. These observations seem to indicate that a more thorough analysis of rinsability and factors affecting rinsability is necessary before a satisfactory method of comparing washing performance on the basis of detergency may be established.

A general analysis of the detergency factors significant in evaluating dishwashing performance indicates that decreasing pH and emulsifying power, and increasing phenolphthalein, inactive and total alkalinity, surface and interfacial tension, decrease soil removing ability. C. C. Ruchhoft and F. I. Norris, *Public Health Reports*, 66, No. 21, 655-667 (1951).

Electronic Sterilization

Foods, drugs and other products may be sterilized in the final stage of manufacture, by belt conveying the packaged product through a stream of high energy electrons. The sterilizing action of high energy electrons is completely different from that of heat. It depends on the excitation and ionization of the atoms of the organism, which in turn cause chemical changes, and bring about its destruction. One advantage of sterilizing with electrons lies in performance of the operation practically without heat. Penetration of the electrons depends on the electron voltage and density of the irradiated material, where penetration varies directly with voltage. J. G. Trump, B. E. Proctor, *Modern Packaging* 24, No. 11, 105 (1951).

Uniform Soap Drying is a *Precision* Job

Even the slight variations in the uniformity of dried soap flakes is reflected in the quality of the finished soap. Uniform soap flake drying is really a *precision* job—and is the result of two important factors. First—the ribbons entering the dryer must be uniform and second, the drying must be carefully controlled. To achieve this uniformity and control calls for precision engineering of heavy duty equipment.

Ribbon uniformity is achieved in direct proportion to the degree of precision with which the chilling roll is engineered and built. Proper drying is brought about only to the extent that there is a uniform circulation of heated air, for the proper drying time, at the right temperature to suit the characteristics of the particular soap.

That is why the Proctor automatic flake soap system is engineered to such rigid specifications. Ribbons formed by the chilling roll are dependably uniform. In the dryer, uniform circulation of heated air is maintained through the bed of soap and across the entire width of the conveyors. The speed at which these conveyors move and the temperature within the dryer can be regulated to suit the characteristics of the soap being handled.

Combining the work done by the Proctor chilling machine and the dryer, it is easy to see that this system is designed for the precision job that alone assures top quality soap production at all times.

If you would like to know how this system may be employed in your plant—write today for the latest detailed information.

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P & S

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Salt Soap Cracking Cause

The presence of salt is said to have considerable influence on the cracking of milled toilet soaps, according to some theories. The absence of salt in cold milled soaps is sometimes believed to favor resistance to cracking. A series of studies with two batches of soap prepared by the cold process, under similar conditions where ten per cent salt was added as a thin slurry to one batch, no cracks appeared in either of the soaps after stamping, or during 15 days of observation. *Indian Soap Journal* 16, No. 10, 264 (1951).

Detecting Syndets in Mixes

A positive end point is obtained by titrating aqueous solutions of synthetic detergents with surface active ions of opposite charge, so that the method can be used as one of analysis in the detection of synthetic detergents, when they are mixed with inorganic alkalies. Such alkalies include: sodium carbonates, sodium phosphates, carboxy methylcellulose, and other detergent additives found in many household and industrial detergents.

The point at which the solution contains an equal number of positive and negative charges is identified by a minimum in the surface tension and a maximum in turbidity. If a layer of chloroform and an ionized organic dye are present, the end point is marked by a sudden migration of color from one liquid phase to the other. Bromophenol blue has given sharp end points in titrations involving anion-active detergents. The procedure could be adapted to tests with cation-active detergents. Phosphomolybdic acid has been used successfully in measuring the adsorption of a non-ionic surface-active agent on wool. W. A. Fessler, Report at A.S.T.M. Committee D-12, Soaps and Detergents, meeting, New York, March, 1951.

Bentonite Cleaner

A cleaning composition suggested for use on contaminated insulators carrying electrical circuits, contains: 6 kg. of a quartz powder, 3.3 kg. of pulverulent bentonite, 330 cc. of 19° Be. hydrochloric acid, 160 grams of a corrosion inhibitor, 1.9 kg. of an organic acid such as $(CO_2H_2)_2$, .5 kg. of an emulsifying agent, and 24 grams of methyl orange. German Pat. 802,941, through *Chemical Abstracts* 5342 (1951).

Bar Form Bath Detergent

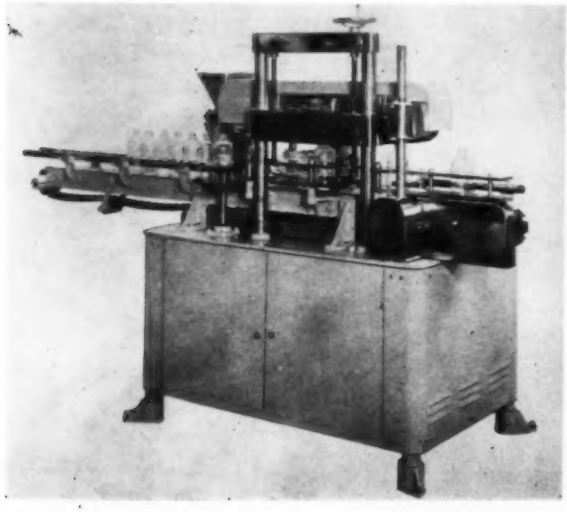
A non-alkaline body cleanser which can be formed into bars contains a mixture of a wetting agent other than soap, a substance of waxy consistency, and free albumin. The wetting agent specified may be a reaction product of sulfuric or phosphoric acid on higher molecular alcohols of more than ten carbon atoms, or salts of these products; or, sulfonated albumin-fatty acid condensation products, and derivatives of lauric, myristic and stearic fatty acids or alcohols, used commercially as wetting agents. The waxy substance may be a paraffin wax, carnauba and/or beeswax. Milk casein (albumin) may be in the form of dried milk powder. Suggested additives, which are optional, include colloidal minerals such as kaolin, bentonite or floridin; binding agents such as tragacanth, starch, dextrin; or synthetic thickening agents such as methyl cellulose, and triethanolamine. Brit. Pat. 583,028 through *Manufacturing Chemist* 22, No. 6, 256 (1951).

New MRM Labeler

Development of a fully automatic labeler, the newest addition to its line, was announced recently by MRM Co., Brooklyn. It operates at speeds of up to 75 containers per minute, and can be adjusted by unskilled operators to adapt it for varying container sizes. The new labeler, according to the maker, affixes paper or metal foil labels securely to any type of container including cardboard, tin, plastic, metal or glass. Labels of postage stamp size up to those five by six inches can be handled and applied to containers ranging in sizes from fractional ounces to gallons.

With the new labeler, glue is applied away from the edges. It is spread evenly when wipers come in contact with the label, yet glue is prevented from oozing beyond the edges of the label. Additional features include centralized lubrication, adjustable guide rails, table top chain conveyor, variable speed control and simple dismantling of glue pot for cleaning.

All working parts are enclosed in a cabinet, including a ¾ h.p. motor and vacuum pump. The intake and discharge conveyor is seven feet, six inches. The labeler occupies floor space of approximately three feet by seven and one-half feet. The labeler can be supplied in duplex style to handle up to 150 containers per minute. Models are also available for front and back labeling.



The new MRM automatic labeler may be adjusted to handle containers of various sizes.

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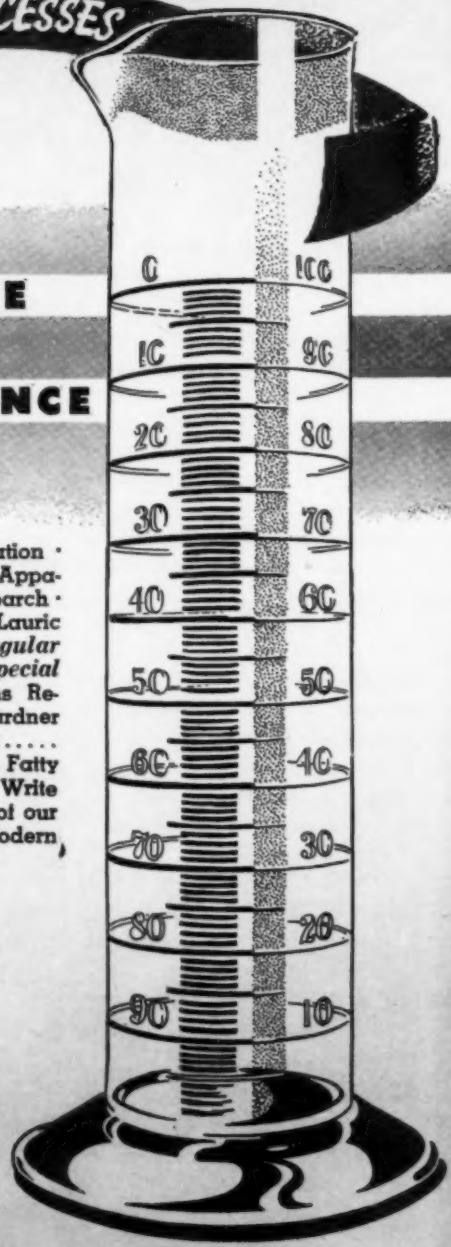

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Book Reviews

Organic Intermediates Book

Preparation of Organic Intermediates by D. A. Shirley. Published by John Wiley & Sons, Inc., New York. 6¼ x 9 inches, 328 pages, cloth binding, price $6.00.

Preparative directions on more than 500 useful organic compounds are compiled in this text, using starting materials which are available commercially at relatively low cost, or which can be prepared readily from available materials. Synthesis of those compounds are included in this text, which are not available commercially; are relatively expensive; or are compounds the structure of which is simple and contain reactive functional groups which make them useful as an intermediate.

Volume on Silicones

An Introduction to the Chemistry of Silicones by E. G. Rochow. Second Edition. Published by John Wiley & Sons, Inc., New York. 213 pages, 6 x 9 inches, cloth binding, price $5.00.

Four new chapters have been added to the revised edition of this text: "The Carbon-Silicon Bond," "Synthesis of Organo-silicon Compounds," "The Physical Chemistry of Silicones" and "Tables of Physical Properties of Organosilicon Compounds." The first few chapters review the silanes and their derivatives. Later chapters emphasize the silicone polymers important commercially, giving methods for their preparation, their chemical and physical properties, and their possible uses.

Book on Chemical Reactions

Organic Reactions, Volume 6, by Roger Adams, editor-in-chief. Published by John Wiley & Sons, Inc., New York. 6¼ x 9 inches, 517 pages, cloth binding, price $8.00.

Important synthetic chemical reactions are compiled in several volumes, with special emphasis on various methods of preparation of the compound, limitations of the process, interfering influences, effects of structure, and the selection of experimental techniques. This volume includes chapters on: the Stobbe condensation; preparation of 3,4-dihydroisoquinolines; synthesis of tetrahydroisoquinolines; preparation of thiazoles, thiophenes, phosphonic acids; and other reactions.

U.S.D.A. 1950-51 Yearbook

Crops in Peace and War, The Yearbook of Agriculture 1950-51, by the U. S. Dept. of Agriculture. Available from the Superintendent of Documents, Washington 25, D. C. Price $2.50. 942 pages, 6 x 9 inches, cloth binding.

"What happens to agricultural goods when they leave the farm" is the theme of this text, including discussions on field crops, oilseeds, oils, and fats, various other agricultural products, and the processing and applications of these products.

An article on CMC as a detergent aid in laundering cotton reviews the action of CMC, and summarizes tests investigating the effectiveness of its use. Discussions on fractionation, bleaching, polymerization, hydrogenation, and refining of fats and oils, as well as oil recovery and the autoxidation of fats and oils are included in a section dealing with fats and oils. Preparation of fatty alcohols for surface active agents, and a review of animal fats and oils in industry, as in soap manufacture, are still other considerations of the text.

A general presentation of pest control problems, and toxicity hazards in use of some insecticides, is contained in an article on "Hazards and Potential Drugs." Also dealt with are such subjects as the "Industrial Use of Rosin," "Chemicals from Turpentine," and "Plants that Help Kill Insects." The last named section reviews pyrethrins, nicotine, and some vegetable oils, which are useful as insecticides.

Oil & Fat Technology Book

Industrial Oil & Fat Products by Alton E. Bailey. Second edition. Published by Interscience Publishers, Inc., New York. 6¼ x 9 inches, 967 pages, cloth binding, price $15.00.

This revised text on oil and fat technology contains lengthy discussions of oils in soap and other surface-active agents, and in such products as insecticides and fungicides, cosmetics, textile lubricants, etc. In general, the book deals with the commercially important oil and fat products and the processes used in their manufacture. This second edition omits a section on production and consumption, included in the earlier volume. A new section on "Handling Storage and Grading" is included in the second edition.

As in the previous work, the first two sections deal with the physical and chemical properties of the oils, their sources, composition, and characteristics. Industrial utilization and unit processes are the main headings of the last two sections.

Theoretical aspects of surface action, phase relations, soap structure, soap characteristics, the structural considerations of surface active agents, and a discussion of the various soap products as to typical composition, and characteristics are covered in a chapter of about 85 pages. Other chapters on unit processes cover: soap-making, with discussions of the soap-making processes; soap boiling; continuous saponification; glycerol recovery; etc. Also reviewed are the refining and bleaching of oils; hydrogenation; deodorization; fractionation, etc.

Sulfonation of Oils

The sulfonation of oils causes a change in the properties of fatty acids contained in the oils, so that it is impossible to identify the original oil by examination of the constituent acids. Sulfonation decreases the iodine number of the fatty acids, and the decrease is proportional to the amount of sulfuric acid used and the time of operation. The acid number is sometimes increased by sulfonation. *Cuoio, pelli. mat. concianti* 27, 38-41 (1951), *through Chem. Abstracts* 45, 4947.

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RENEX *steps up efficiency of soaps and ordinary detergents*

By combining **RENEX** non-ionic detergent with alkalies, soaps and other detergents, you produce specialty cleaning compounds tailor-made to your market for household, industrial or military cleaning products. For example, when you build tallow soap with RENEX, you step up soap cleaning power in hard water as much as 50%!

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PRODUCTION CLINIC

By E. G. THOMSSEN, Ph.D.

CHEMICAL specialties assume additional importance, both for household and industrial use, in periods of expanded military rearmament. As industrial activity grows, sanitation and maintenance products and equipment find wider use. In the civilian economy, more household chemical specialties and equipment for applying them are bought as a larger portion of our population finds steady jobs in industry and has more money to spend.

The increased volume of business adds to the problems of the production executive in a chemical specialties manufacturing plant. In times of prosperity, induced by an accelerated and broadened rearmament program, he must obtain greater amounts of raw materials and equipment, both of which are generally higher priced and more difficult to get, and employ more plant personnel.

Should the manufacturer decide to diversify and expand his output to include items required by the rearmament program he is faced with new and additional problems. To cope with them wisely and successfully, a thorough appraisal of the plant's capacity and adaptability for rearmament work should be undertaken. Alert manufacturers already have, or are in the process of collecting, complete data on the potentialities and present capacity of their plants and facilities. Such steps enable them constructively to meet any emergency demands with which they may have to cope.

To complete a thorough plant survey is a complicated undertaking. The appraisal must be approached from different viewpoints. It is worth while for a production man to be familiar with all aspects of the problem. This is especially true for manufacturers who have not done government work previously. The experiences of those who have engaged in such work are helpful and may be set forth for the uninitiated.

First, the survey for producing military requirements must be so presented as to satisfy military procure-

DR. THOMSSEN

ment officers that a contract can be executed successfully. The appraisal should include a full record of the company's business operations; a list of the products manufactured in normal times; if any phase of previous war production had been undertaken this should be set forth fully; the ability of the production and supervisory personnel should be emphasized; a list of customers who have had satisfactory dealings is of value; and a financial statement showing ample financial responsibility also is desirable. The logical assembling of information on these items, and its typing in such a way that it may be duplicated readily, aid not only in getting orders, but in knowing just what a plant can accomplish for defense purposes if an order is obtained.

Such a survey by itself, however, is not complete if war work is to be added to normal production. In that case it is necessary to find out more about capacity and adequacy of a plant to assure the right production procedure to accomodate increased business.

In expanding production to include defense products, the profit motive should not be overlooked. A reassessment of the products being manufactured should be made with the profit motive in mind. Too many plants in our branch of the chemical industry are making unprofitable items or items in too small a volume to be remunerative when the effort to produce them is considered. War work offers an opportunity to discontinue certain products and, at the same time, keep a plant busy. To determine which products are undesirable, a digest of all items, setting forth in detail certain cost data, is necessary. From such a digest a further study of the desirability of continuing or discontinuing certain items handled in normal times can readily be made.

The criterions as to the desirability of continuing to handle a particular product should be based on a number of factors. These are the attitude of customers served, the reaction of competitive manufacturers toward the particular item, a determination of how much the manufacture of an item contributes to factory overhead, a calculation as to what percentage the item contributes to gross profit, a study of the value of a high manufacturing cost item even though made in volume and a close study of reasons for high costs and whether raw material substitutions are possible.

Every business has its own peculiar characteristics. To adapt these advantageously to changing business conditions is not an easy task. Just what is ahead for the rest of this business year is problematical. Prognosticators tell us that it will be even better than it has been because of defense orders. Large backlogs of orders are piled up. More in fact, than was the case a year ago. The general opinion is that black ink will be used for operations for the rest of the year. In any event, a thorough survey of production possibilities along the lines suggested is a constructive step to meet future business conditions be they good or poor.

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CONTAINS NO BRASS OR ZINC

The Model 13 Top Filled Push-up Dispenser, which has been our biggest seller in the past four years, is available for immediate shipment at the same price as the Model 18. The body is made of guaranteed unbreakable, polished black Tenite, with a steel reinforcing rod running through the body and a steel back plate for attachment to the wall. The clear glass globe is firmly cemented into the body.

It is our policy to continue manufacturing soap dispensing equipment of the highest quality while fully complying with current government regulations. Write for bulletin describing complete line now available.

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New permanent process available for advertising your own name, trademark and product on the front of this dispenser. Write us for details.

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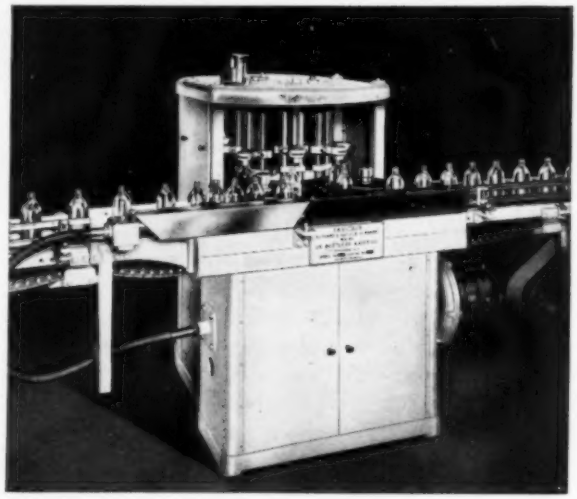

Highly recommended for air cleaning containers of products that require spray valves that must be protected against valve clogging. In successful use on cleaning containers for products such as Aerosol, DDT Bombs, etc.

The SANITAIR ROTARY AIR BOTTLE CLEANER

Completely automatic. Now available with advanced type feed and new, exclusive automatic control. Provides double cleaning time at normal operating speeds — in half the usual machine space. Produces most positive action and economical use of compressed air. Handles all size containers from sprinkler-top to wide mouth finishes. Quick machine adjustments for different size containers. Write for the new Sanitair Bulletin.

The E-Z TWO-TUBE CLEANER *Semi-Automatic*

A bottle cleaner for new glass. As a two-tube machine it handles two containers at a time. The instant the inverted container contacts the machine, a blast of compressed air efficiently removes foreign matter from the container. Requires only ordinary skill for efficient operation. Furnished with air filter for connection to customer's air lines. Floor space required only 27 x 14 inches. Write for Model E-Z Bulletin.

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Versatile Mill

THE "Imp" Mill built by the Raymond Division of the Combustion Engineering Co., Chicago, has other applications besides grinding. It may also be used for uniform blending and dustless conveying of various formulations containing several ingredients. The flexibility of this mill makes it adaptable to most plant layouts. When used for grinding, it produces a fine, uniform powder in a wide range of meshes down to 95 per cent of a 325 mesh product without the use of screens. The mill is air cooled, which protects the product against physical or chemical changes due to high temperatures encountered at times in grinding operations.

Inexpensive Organic Filler

IN producing certain sanitary products an organic, rather than a mineral filler, is advantageous. Several vegetable substances are used for this purpose. Some manufacturers use ground rice hulls to advantage. These are available in fine, coarse or medium grinds and are available in any volume the year around. Free samples and prices are available from Rice Hull Division, Arkansas Rice Growers Co-Op Association, Stuttgart, Arkansas.

Dust Filter

ORDINARY dust masks are so uncomfortable that many workmen shun them rather than withstand the discomfort. The Nasal Filter Company, Dept. A-2, Columbus, Ohio, handles a protective device that may be comfortably worn inside the nostrils to protect one from dust. It weighs 1/12 oz. and prevents most of the pollens and dusts from reaching the nasal passages. It may be worn any time and any place as it is scarcely noticeable.

Non-Stop Strainer

CUNO Engineering Company, Meriden, Connecticut, builds a strainer useful with a large range of liquids without the necessity of interrupting the flow of or dismantling of the filter. All that is necessary to continue the fluid flow uninterruptedly is to turn a handle occasionally to comb out sludge and dirt accumulations. High viscosity liquids are readily strained. Further information regarding filtering problems is available upon request.

Blender and Mixer

THE well known "Ransome Mixer" produced by the Mixer Division of Worthington Pump & Machinery Co., Dunellen, New Jersey, is finding a number of new applications. One mixer is recommended for blending and mixing soap powders. The advantages are dust proofness, heavy duty construction and clean discharge.

Fast Labeler

NEW JERSEY Machine Corporation, Hoboken, N. J., features a labeling machine known as "Label-Dri." This labeler labels without glue and is economical for use on both short and long runs. As many as four different sizes may be labeled without any change of parts. Capacities of up to 360 per minute are obtainable. The machine is designed for perfect register, is fully automatic, presents no glue problems and prevents blisters and loose edges on finished labels. Further details, as well as a demonstration, are available to interested manufacturers.

Concrete Floor Protection

FLEXROCK Company, Philadelphia, is the manufacturer of "Flintcrust." This liquid, 7/8 gallon of which will cover 100 feet of a concrete floor, hardens the surface so that oils, fats and greases will not penetrate and cause troublesome deteriorations.

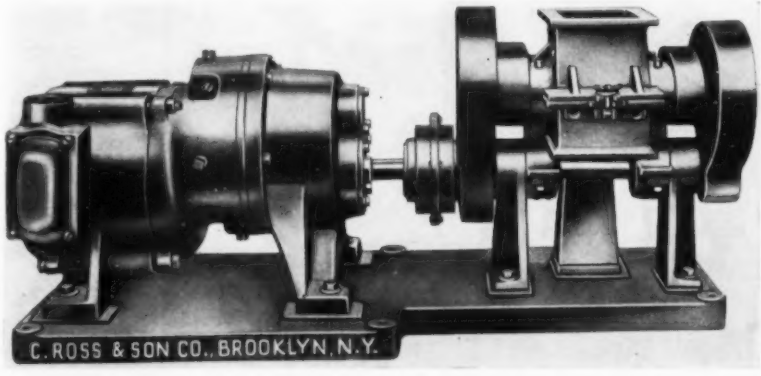
S&S Selling Banks Labeler

Stokes and Smith Co., Philadelphia, is now selling and servicing "Banks" labeling machines in the U. S. Arrangements were recently concluded between the Philadelphia concern and Morgan Fairest, Ltd., Sheffield, England, maker of the "Banks" machines. The "Banks" labelers are suitable for bottles, jars, etc., in various sizes and shapes.

New Ross Kneader

The addition of a one-pint size kneader and mixer to the line of Charles Ross & Son Co., Brooklyn, was announced recently. The improved model, No. 41 steam jacketed, heavy duty, one-pint kneader and mixer is the companion to a series of kneading machines ranging in size up to 150 gallons. The No. 41 model is also available in a one-quart size. In both sizes it is designed to answer the need for a pilot model for laboratory use and for running test batches.

The new unit is powered by a direct driven, 1/4 Hp. motor. It also has a steam jacketed trough which permits cooling or heating of material being processed. The model is built in two sections for easy dismantling for cleaning. There are "sigma" type stirrers, which are easily detached for cleaning, and the unit is hand-tilted by a balance arrangement for quick discharge of material. Cut steel gears are used throughout for quiet, efficient operation. The kneaders may be furnished with either cast iron or stainless steel construction. Special covers, other type stirrers and two-speed motors are optional features of this new piece of equipment.



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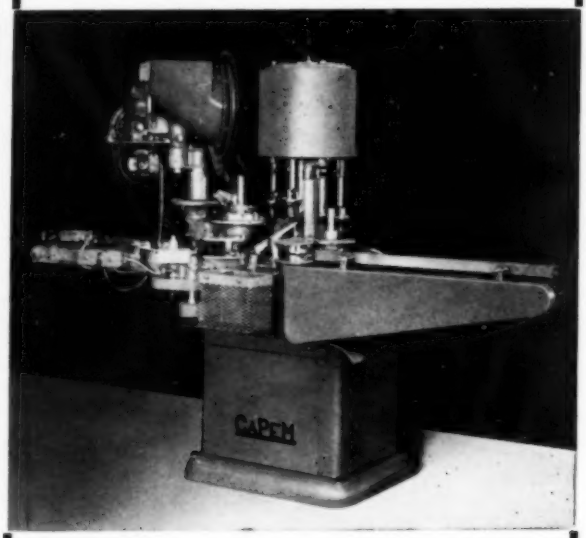
THE MODERN SCREW CAPPER



- Applies any type of standard screw cap or cover at speeds of 2000 to 10000 per hour.
- Takes container from conveyor line, applies cap perfectly, and returns container to conveyor AUTOMATICALLY without intermediate handling.
- Handles bottles, jars, cans or jugs of any size or shape.
- Delivers a perfect, LEAKPROOF seal at low cost.
- Available in 1, 2, 4, 6 and 8 spindle models.

Write for prices and delivery.

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N.Y.

PRODUCTS AND PROCESSES

Rosin Soap Discoloration

Investigations of the darkening properties of rosin soaps indicate that coloration proceeds more rapidly in a nitrogen atmosphere than in humid air. The addition of antioxidants does not retard development of color. Coloration is due to a change in molecular structure of the rosin soap, associated with loss of moisture, according to this study. Separate saponification of the rosin reduced the development of color. Addition of two per cent salt and .2 per cent "Sequestrene" also reduced color. Tallow-coconut oil soaps, containing 15 or 20 per cent of three different rosins were used in the tests. *Bull. Mens ITERG* 5, 130-7 (1951) through *Chem. Abstracts* 5427.

—— ♦ ——

CMC as Washing Agent

Better suspending properties and at least equivalent dirt removal properties were obtained in washing tests using a solution of:

	grams per liter
carboxy methylcellulose	.12
fatty acid	1.0
soda	4.0

as compared with tests using a solution containing two grams per liter of fatty acid, and four grams per liter of soda. Less mechanical damage occurred with the solutions containing CMC. *Mededeel. Proefsts. Wasind.* through *Chem. Abstracts* 5951 (1951).

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Alkyl Aryl Sulfonates

A detergent composition is prepared by combining an inert non-alcoholic solvent or solvents, one of which is insoluble in water; a mono-nuclear alkyl aryl sulfonate, the solvent being dispersed in water, and optionally, a refined mahogany soap or other sulfonated petroleum product or sulfonated fatty oil. The solvents indicated above may consist of inert hydrocarbons such as paraffins, deca- and tetra-hydronaphthalenes, benzene and kerosene in equal volumes, or halogenated hydrocarbons such as carbon tetrachloride and trichlorethylene. Brit. Pat. 591,035 through *Manufacturing Chemist* 22, No. 6, 256 (1951).

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Bicarbonate Skin Detergent

A detergent solution designed for use in cleansing the skin contains a mixture of an aqueous solution of sodium bicarbonate, absolute ethyl alcohol and water in specified proportions. The solution may also contain a small amount of glycerol. Brit. Pat. 585,675.

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Cetrimide Dentifrice

Cetrimide and other germicidal cationics may have some application in the preparation of oral products such as dentifrices, mouthwash, etc., because of the combined wetting, bactericidal, and detergent properties. However, cetrimide has an unpleasant, bitter taste, which is quite persistent, limiting its satisfactory use. The following formula gives a good dentifrice, however, the cetrimide does leave a strong bitter taste:

methyl cellulose 4%	36 ml.
water	16 ml.
precipitated chalk	16 gm.
light magnesium carbonate .	8 gm.
cetrimide	2 gm.
aniseed oil	1 ml.
peppermint oil	1 ml.
sodium saccharine	.1 gm.

Substituting one gram of a non-ionic detergent for an equal amount of the cetrimide would reduce the bitterness, but would also reduce the lather. D. N. Burton, *Manuf. Chem.* 22, No. 7 267 (1951).

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Liquid Hand Cleaner

A suggested liquid hand cleaner based on a bland non-fluorescent mineral oil, a non-ionic detergent and soap, contains the following: 24 per cent non-ionic detergent, 10 per cent mineral oil, cosmetic grade; 10 per cent isopropyl alcohol; 5 per cent commercial lauryl alcohol; 2 per cent cresol (optional); 8 per cent low titer soap; and 41 per cent water. This formula is recommended particularly for skins which are sensitive to other cleaners. *Brit. J. Industrial Med.* 8, No. 1, 26 (1951).

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Sulfur in Soap

Therapeutic action of soaps containing sulfur is claimed on the basis that skin absorption of the organic sulfur results in the destruction of bacteria, affording regulated breathing, offering a protection against cold, and eliminating skin diseases.

One to two per cent organic sulfuric oil may be added to soaps along with dyes and perfumes. In liquid soaps, the sulfuric oil should be added to the cooled liquid potassium soap as a solution in two or three times its volume of distilled water. H. Herwit, *Alchimist* 5, No. 7, 189-192 (1951).

—— ♦ ——

Skotch Antiseptic Soap

A new powdered, antiseptic hand soap, designated "Germisept," was announced recently by Skotch Products Corp., Cleveland. In addition to containing a germicidal ingredient (2,6-dimethyl - 4 - hydroxychlorobenzene), the soap also contains lanolin. The combination is said to reduce the number of skin bacteria causing dermatitis if the product is used daily, and at the same time conditioning the hands. "Germisoap," which is a free flowing powder, has a pH of 9.5 to 10. It is available in heavy, medium and light duty granulations. The product is beaded, rather than granular, which makes its density light (less than a pound to the quart).

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Booklet on New Filler

A new booklet describing advancements on U. S. Model B-49 vacuum filler was announced recently by U. S. Bottlers Machinery Co., Chicago. Improvements in this one-man, automatic filler are fully described in the new Bulletin B-49. Copies are available by writing the company at 4019 N. Rockwell St., Chicago 18, Ill.

EXQUISITE FLORALS FOR SOAPS

Apple Blossom	Honeysuckle	Rose
Carnation	Hyacinth	Sweet Pea
Clover	Jasmin	Syringa
Fougere	Lavender	Verbena
Gardenia	Lilac	Violet
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NEW PATENTS

The information below is furnished by patent law offices of

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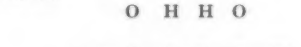
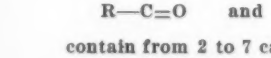
The data listed below is only a brief review of recently issued pertinent patents obtained by various U. S. Patent Office registered attorneys for manufacturers and/or inventors. Complete copies may be obtained direct from Lancaster, Allwine & Rommel by sending 50c for each copy desired. $1.00 for Canada. They will be pleased to give you free preliminary patent advice.

No. 2,532,558. Pest Control Compositions for the Control of Bacteria and Fungi Containing 1, 2-Diacylethylene, patented by James E. Kirby, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware. A pest control composition is described for the control of bacteria and fungi comprising in dilute aqueous solution a wetting agent and a 1,2-diacylethylene having formula



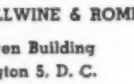
where in the acyl groups



contain from 2 to 7 carbon atoms and are selected from the class consisting of alkanoyl and aroyl groups, said 1,2-diacylethylene being an essential active ingredient therein.

No. 2,554,756. Rodenticide Composition, patented by Franklin D. Smith, St. Louis, Mo., assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware. A rodenticide and insectivoricide composition is covered comprising a processed food product and 0.5 to 20 per cent of the hexa ester of tetrapolyphosphoric acid, the said ester residue being a radical containing from 1 to 4 carbon atoms selected from the group consisting of alkyl, alkenyl and cycloalkyl.

No. 2,545,287. Tertiary Diacyl Amine Insecticide, patented by James E. Kirby, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware. An insecticidal composition is covered containing as an essential active ingredient in solution in kerosene, a tertiary diacyl amine represented by the formula



in which -XR³Y- is a diacyl radical and R² is a monovalent organic radical linked to the nitrogen atom thru a carbon atom.

No. 2,550,691. Noncorrosive Detergent Compositions, patented by Jay C. Harris, Dayton, Ohio, assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware. A detergent composition is described comprising the following essential ingredients in parts by weight:

	Parts
Condensation product of tall oil with ethyl-parts of ethylene oxide per part of tall ene oxide containing from 0.5 part to 2.3 oil	10-25
A phosphate material selected from the group consisting of tetrasodium pyrophosphate and sodium tripolyphosphate (anhydrous basis)	20-60
Alkaline material selected from the group consisting of sodium carbonate, sodium bicarbonate, and mixtures thereof (anhydrous basis)	10-25

said composition containing in addition from 6 per cent to 25 per cent by weight, based on the combined weight of said phosphate material and said alkaline material, of a sodium silicate having an

$$Na_2O:SiO_2$$

ratio of from 1:2 to 1:3.2.

No. 2,552,797. Solvent Fractionation of Fatty Materials, patented by Felix E. Lacey and William M. Leaders, Chicago, Ill., assignors, by mesne assignments, to Swift & Company, a corporation of Illinois. A process for refining and fractionating fatty materials is described which comprises subjecting a solution of the fatty material in a normally gaseous hydrocarbon solvent to temperature and pressure conditions to cause a separation of a heavier liquid phase containing impurities and a lighter liquid phase containing decolorized fatty material, separating said phases, reducing the pressure to vaporize a portion of said hydrocarbon from the lighter liquid phase while supplying heat to avoid cooling below about 100°F., chilling the decolorized fatty material by vaporizing a further quantity of the normally gaseous hydrocarbon to a temperature sufficiently low to crystallize the higher melting constituents of said fatty material and then filtering the mixture to separate said higher melting point constituents.

No. 2,555,330. Insect Repellent, patented by Marshall Gates, Bryn Mawr, Pa., assignor to the United States of America as represented by the Secretary of the Army. An insect-repellent fabric comprising fabric impregnated with dipyridine is described.

No. 2,556,820. Aqueous Dispersions of Dichloro-Diphenyl Trichloroethane, patented by Aubrey H. Nease, Plainfield, N. J., assignor to General Aniline & Film Corporation, New York, N. Y., a corporation of Delaware. An insecticidal composition is described consisting of a stable readily water-miscible aqueous dispersion in from 1-20 parts of water, of 1 part of a composition of 2,2'-bis-(parachloro-phenyl)-1,1,1-trichloroethane with from 20-50% by weight thereof of a dispersing agent consisting of a water-soluble nonionic polyglycol ether surface active agent.

No. 2,556,300. Insecticidal Composition, patented by Jere C. Showalter, Goose Creek, Tex., assignor to Standard Oil Development Company, a corporation of Delaware. The patent covers an insecticidal composition of matter consisting of no more than 5% white petroleum oil, no more than 5% salt of a petroleum alkaline sulfonate and approximately equal amounts of para dichloro diphenyl trichloroethane and of a volatile aromatic solvent.

No. 2,557,519. Pest Control Compositions and Process of Producing them, patented by Davis A. Skinner, Compton, and Elvin L. Wampler, Anaheim, Calif., assignors to Union Oil Company of California, Los Angeles, Calif., a corporation of California. The patent covers a pest control composition essentially comprising an aqueous dispersion comprising between about 0.1 and about 5.0 per cent by weight of a product selected from the class consisting of mixed lower alkyl 2,4-dinitrophenyl sulfides and mixed lower alkyl 2-nitro-4-halophenyl sulfides in which the alkyl groups contain from 1 to 7 carbon atoms.

No. 2,557,062. Wood Treating Preparations, patented by James H. Pickren, Jacksonville, Fla., assignor, by mesne assignments, to American Celcure Wood Preserving Corporation, Jacksonville, Fla., a corporation of Florida. A wood treating preparation is covered comprising the reaction products of a heavy metal salt selected from the group consisting of copper nitrate and zinc nitrate; chromic anhydride; phenol sulfonic acid in excess and the balance water.

They discovered

Soap makers tried for years to make a soap that would float—inserted cork, wood and other materials in soap bars, without success. But one day a worker accidentally let his crutcher run during his lunch period and thus beat air into the mixture. The result was a finished soap that *floated.*

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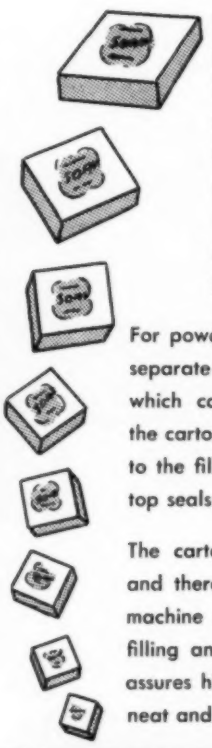

The Neverstop Machine *automatically* feeds the cartons from a supply, bottom seals them, fills through adjustable volumetric measuring cups, *(automatically ejects slack filled cartons),* and top seals them. This method of filling is particularly suited for free flowing products like salt, soap granules, rice, cracker meal, etc., where the density of the product is uniform.

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SOAP PLANT OBSERVER

By John W. McCutcheon

THE soap and synthetic detergent industry is passing through a stage of "metamorphosis" at the present time which requires that the greatest attention be paid to research in all its phases. How privately endowed research institutes can help industry with research problems is told in the 38th annual report of the Mellon Institute which has just come to hand. Mellon Institute, built in 1937 and occupying a site in Pittsburgh a few blocks from the University of Pittsburgh, is a labyrinth of laboratories and executive offices. It does research on a wide variety of products and processes. Battelle Memorial Institute in Columbus, O. and Armour Institute in Chicago are similar types of institutions. They form a link between the research of universities, handling pure research for the most part, and industrial research laboratories that are devoted mostly to doing applied research.

When a project is completed, which may require one or more years, frequently it happens that the person who has been doing the research leaves the institute to continue the work with the private sponsoring company. The institute does not discourage this procedure since it feels that part of its value to industry is in making available trained personnel. Although the private research organization is endowed, it does not provide free service to industry, which must bear the cost of salaries and overhead. Any surplus that may accrue through the transaction must be put back into the organization to improve its facilities.

Research done under these conditions has several advantages over that done by a private company. One advantage is the fact that the project is financed for a long enough period to accomplish something useful. Too often a private company will start a research project and discontinue it just at the point where it might yield some

MR. McCUTCHEON

valuable result. In the second place, the research is conducted away from the turmoil and interference of other factory problems. The research worker need not divide his attention or be influenced in his thinking by related projects. Another advantage is that the institute often has equipment available which is out of the reach financially of the moderate or even the large private concern. Finally, the worker has access to the opinions of many other workers in unrelated fields, and usually has at his disposal a fine library.

The disadvantages of such research is the fact that it costs approximately as much as the same research conducted either in one's own plant or by a private consulting laboratory. In fact it may cost more than the same work done in a private consulting laboratory since the latter is set up better to accept smaller pieces of work. Thus, it is better able to split the research project between factory and commercial institution. Another disadvantage of institute research is the fact that the direction and method of handling is pretty much out of the hands of the private company. This arrangement makes it more difficult for the sponsoring company to control the direction of the research than if it were being handled entirely in the firm's own laboratories.

The opening paragraph of the Mellon Institute's 38th annual report states in part "a most important source of strength in our country is our great research scientific power with its wide capability. This research provides the scientific facts needed by the professions and industries of today and tomorrow. Directly and indirectly it is helpful and advantageous to everyone in the land."

Research in general can be divided into two classes: fundamental and applied. The former is conducted chiefly at the universities, the latter mainly in industry; although there is much overlapping of functions. Endowed institutes and private research laboratories are generally heavy on applied research. Actually, the term research has a very broad meaning. It can be interpreted to represent any endeavor on the part of a company to produce new products or to discover new uses for its regular products or to improve its processes. A small company, for example, may have a research laboratory director and trained staff of chemists. Work that goes on under its roof is frequently termed research, although a good deal of its endeavor is actually plant control analyses.

A company trying to decide whether it should put in a continuous fat splitting unit will send its chief engineer out to inspect such plant installations, and to discuss with various engineering firms the costs involved and the uses of such a process. To the company supplying the information this is merely the dissemination of facts. To the company seeking the information it is the first step in a problem of their own particular making. The concern must know not only all the facts available about the process but it must likewise find out how the process will fit into its own scheme of plant operations. The process must be compared with others. The effect it will have on existing prod-

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- Speed filtration of unsaponifiables.
- Prevent oxidation, rancidity, discoloration.
- Increase shelf life, inhibit precipitation.
- Improve detergency, increase lather.
- Insure clarity even in hard water.
- Prevent formation of soap film.
- Give "built-in" hard water resistance.
- Prevent chalking and rancidity.
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ucts in the firm's line must also be understood.

Research may be simple or it may be quite involved. The point of this example is that research should not be considered merely as chemical research. It should also involve the investigation of processing and engineering and market research. The latter concerns itself with learning how much of and where a product may be sold once it is in production.

In the example quoted above (from an actual plant experience) only the work done in the laboratory was considered research. Process development work was a hit or miss item. There was no one in the organization delegated to keep abreast of current developments in the field. Market research was dependent on salesmen's reports which for the most part were non-technical and of dubious value for that reason. Quite often a new foreman would come up with an idea to cut costs, only to be told after a great deal of work had been done, that the method had been investigated several years before and had been discarded. The report of the previous investigation probably had been verbal or was buried in some inaccessible file.

This duplication of effort is not only a waste of time and money. It is also discouraging to those people in the organization who would like to see some progress being made. Whether or not this type of work is called research or just plant development work is unimportant. It is important, however, that it be programmed and made accessible to the proper persons in the organization. Another advantage of such programming is that the money spent on such work can be proportioned more fairly according to plant needs. A third advantage is that it is a record to the head office of what ideas have been proposed from time to time. Frequently very valuable research work is discarded by the short sightedness of management.

Not long ago the writer had occasion to interview the research director of a fairly large soap making concern in the mid west. As various topics were discussed it was noted that practically all modern developments received the same treatment. "Yes, we considered using that at one time but after an investigation we decided not to." The result was that in the last twenty years the only development of any importance of that company's is a new method for producing a bar laundry soap, a type of product the volume of which has declined 50 per cent in the last twenty years.

Another case is that of a firm of considerable size which had investigated synthetic detergents extensively as far back as 1936. Research indicated very promising returns but the management decided to set the results aside. The net result is that because of its recognizing the significance of these products early and its slow start in producing them the company is quite unimportant in the field today. Either research was not carried forward far enough to be conclusive or management was paying the doctor and tearing up his prescription.

* * *

THE Fifth Annual Consumer Analysis of the McClatchy Newspapers has just been issued. It represents the analysis of about 135,000 families in the Sacramento, Fresno and Modesto areas of California. Synthetic detergents continue to climb at a very rapid rate as is indicated in the table below. One noticeable feature of this report is the increase in heavy duty detergents and the almost universal decline in the reported use of light duty detergents. This is not shown in the tabulated data.

Percentage of Synthetic Detergents—Versus Soap

For Dishes	1947	1948	1949	1950	1951
Sacramento	22.1	29.4	43.2	54.5	66.5
Fresno	37.6	46.0	60.6	68.3	77.5
Modesto	37.8	47.8	57.4	62.0	78.6
Weighted Average*	28.4	36.3	49.7	59.1	70.7
For Fine Fabrics					
Sacramento	14.0	17.2	23.0	27.3	36.4
Fresno	22.4	25.8	31.0	35.5	40.8
Modesto	21.7	26.2	31.6	38.2	46.5
Weighted Average*	17.3	20.6	28.7	30.8	38.8
For Laundry					
Sacramento	...	...	11.2	26.6	40.2
Fresno	...	...	10.3	25.6	42.3
Modesto	...	...	12.3	33.1	44.2
Weighted Average*	...	...	11.0	26.9	41.3

* Based on families questioned of 82,000 for Sacramento, 42,000 for Fresno and 14,000 for Modesto.

AOCS Plans 1952 Course

A short course on soaps and synthetic detergents to be given at an eastern university during 1952 was approved at a meeting of the governing board of the American Oil Chemists Society, it was announced recently. The idea of the course at an eastern school had been recommended by the education committee of A.O.C.S. A subcommittee of local specialists is to aid in the setting up of the course.

The 25th fall meeting of the American Oil Chemists Society is to be held this year at the Edgewater Beach Hotel, Chicago, Oct. 8-10. H. T. Spanuth of Wilson & Co., Chicago, is program chairman. C. E. Morris of Armour & Co., Chicago, is general chairman for the meeting. Members of the program committee include: G. J. Stockmann of Wurster and Sanger, Inc.; E. W. Colt, Armour Soap Works; H. C. Black, K. F. Mattil of Swift and Co., all of Chicago. There will be exhibits at the meeting, with R. H. Rogers, Jr., of Swift, in charge. Social features of the program include a social evening, Sunday, Oct. 7, a stag smoker on the 8th and the banquet in the Marine dining room on the 9th. Field trips are being considered for the 11th. The 1952 annual spring meeting will be held at the Hotel Shamrock in Houston, Tex., Apr. 28-30.

Sanitizers

(*From Page 69*)

sisting of detergent materials like sodium carbonates, phosphates, silicates, and borates, an organic sequestering agent, and a germicidal quaternary ammonium salt of ethylene diamene tetracetic acid. In a more recent patent, MacMahon (32) described the preparation of stable, hard, strong and non-deliquescent detergent briquettes having bactericidal properties. These were made by incorporating a quaternary ammonium compound into a detergent composition consisting of such substances as sodium carbonate, trisodium phosphate, sodium silicate, and various polyphosphates.

Mention should be made of a more specialized type of product which, though useful in other fields, is especially valuable in washing dairy equipment. These are the so-called organic acid detergent sanitizers. As pointed out by Proctor, (33) the germicidal effectiveness of the quaternary is reduced in such a product, but it serves the important function of removing milkstone and limestone deposits. A typical commercial organic acid detergent sanitizer is described (34) as containing organic acid, a non-ionic wetting agent and a quaternary ammonium sanitizer. The material is designed for alternate use with a regular detergent sanitizer for the prevention and removal of milkstone, water spots and lime deposits. It is used on dairy farms and in food-serving operations.

It must be remembered that the quaternary ammonium type of detergent sanitizer is a fairly new type of product that requires further evaluation. Not all tests have been favorable or conclusive. (35,36) As stressed by Stewart, (37) these products must be used with common sense and reason. He urges that adequate bacteriologic policing should be carried out.

Before concluding, brief consideration should be given to detergent sanitizers based on compounds other than quaternaries or chlorine-releasing agents. These compositions are based on modified phenols and heavy metal salts. (6) In the former group are the several newer preparations designed for use in cleaning and sanitizing floors and also for the control of bacteria and fungi in carpets, rugs and upholstery. (38) The detergent portion of such products may consist of soaps or synthetic detergents (anionic or non-ionic) while the anti-bacterial parts depends on a compound like *ortho*-benzyl-*para*-chlorophenol (Santophen 1, Monsanto Chemical Co., St. Louis, Mo.) (39,40)

Another type of detergent sanitizer, described by one manufacturer as being suitable for use in restaurants, bars, sickrooms and the like, is made from:

	parts
Alkyl aryl sodium sulfonate	30
Tetrasodium pyrophosphate	30
Soda crystals	40
para-Chloro-*meta*-xylenol (Ottasept*)	2

*Ottawa Chemical Co., Toledo, Ohio.

Compositions utilizing the effect of heavy metals are illustrated in the germicidal detergent compositions patented by Mendenhall. (41) Such a product may consist of a combination of a water-soluble detergent (soap or synthetic) and a glassy phosphate having sufficient silver content to impart germicidal properties to the mixture.

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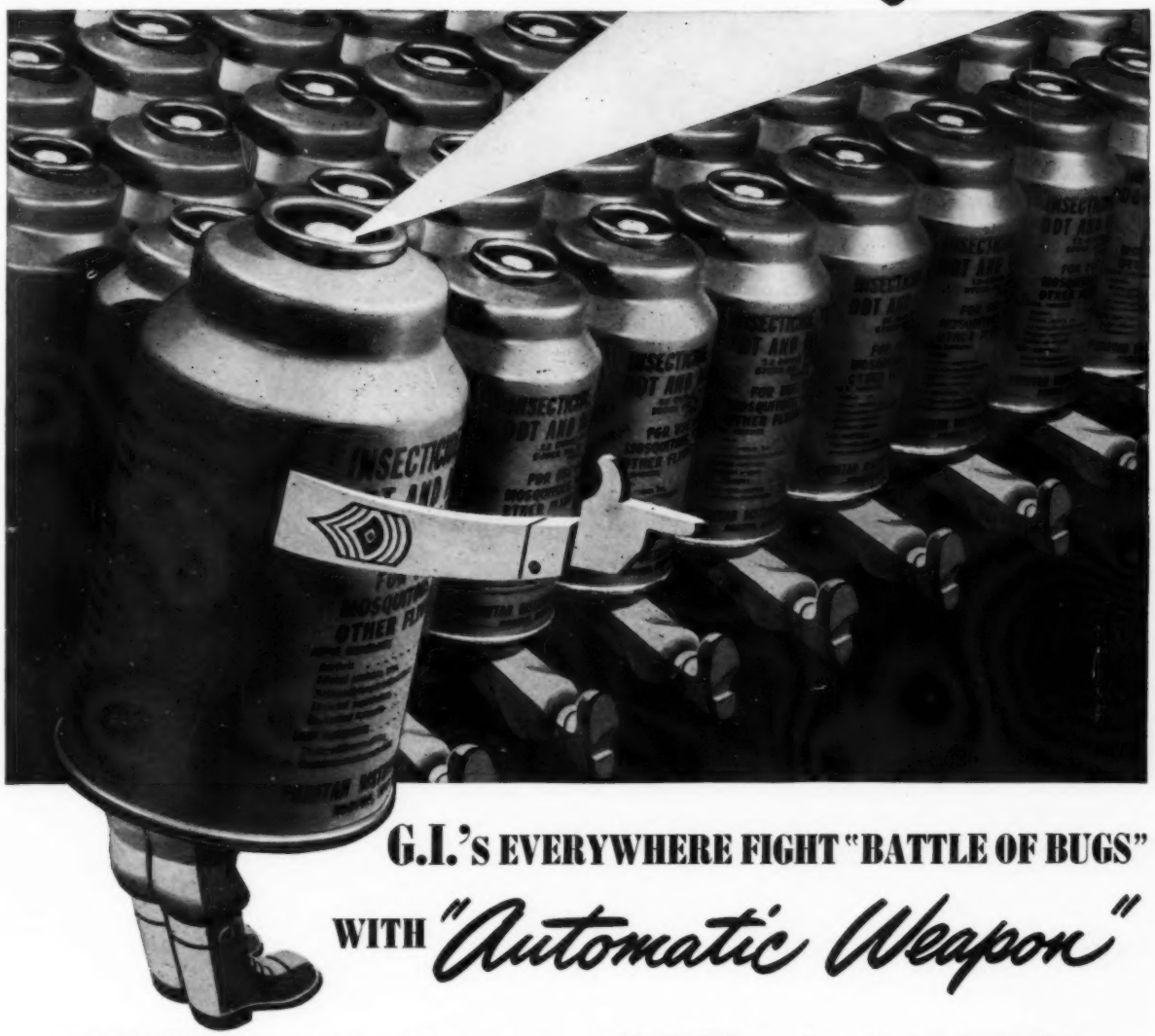

G.I.'s EVERYWHERE FIGHT "BATTLE OF BUGS" WITH "Automatic Weapon"

SPRA-TAINER has received its military orders: "Forward, March . . . to join our men in uniform!" Its special assignment is to help combat insects wherever they are found in profusion, menacing the comfort and the health of servicemen. Against this "sabotage," our Armed Forces are further armed with aerosol insecticide. At the touch of a button, this is jet-propelled in lethal mists — right from the pressurized Crown SPRA-TAINER.

SPRA-TAINER is the *original and only* lightweight, low cost propulsion can with exclusive "No Side Seam — No Top Seam" construction. Its superior strength and dependable performance under all conditions make it ideal for military use . . . and, in civilian employment, First with Manufacturers, First on the Market, First in Sales!

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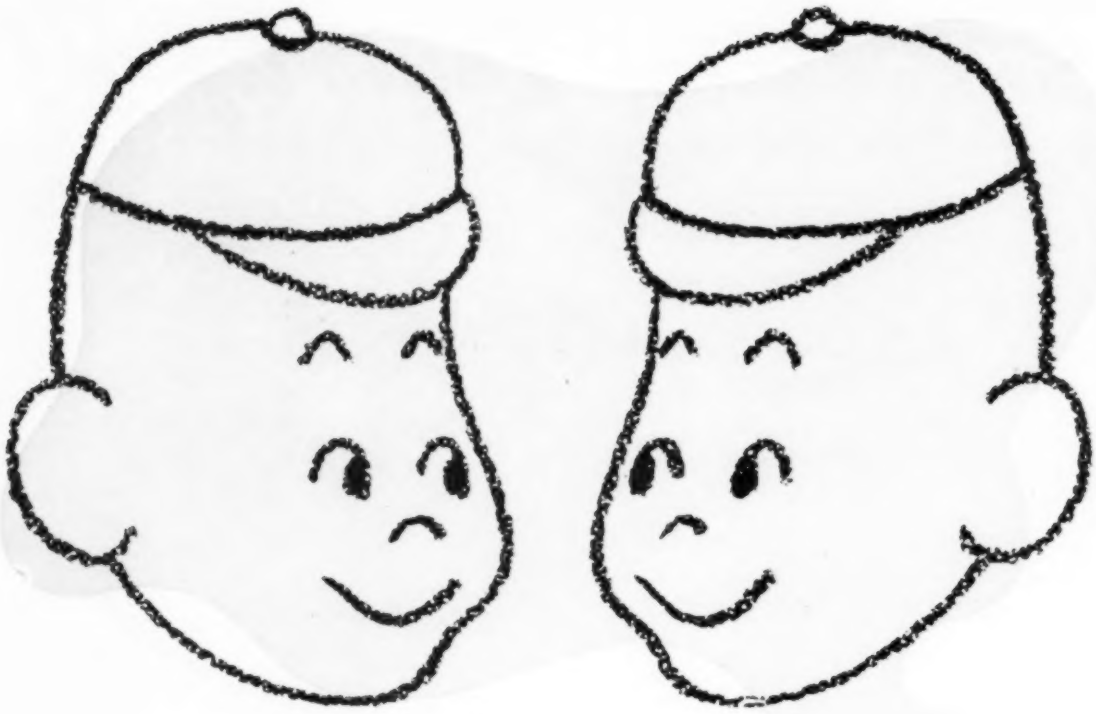

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The kids are twins. You can't tell them apart.

It's not too easy, even for perfume experts, to tell Dreyer Synthetic Scents from the original odors.

The natural products are stable—Dreyer Floral Creations and Bouquets are very stable and easy to work with. They have lasting body and substance. Dreyer chemists have made them more uniform than Nature's scents usually are.

Dreyer prices will stay stable, too! Dreyer Floral Creations and Bouquets cost you less to *buy*—and keep on costing you less to *use*. For more profitable perfume products, start depending on Dreyer Synthetics. See what you'll save. Send for samples today.

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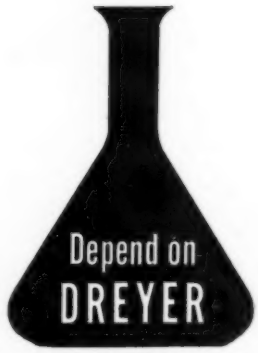

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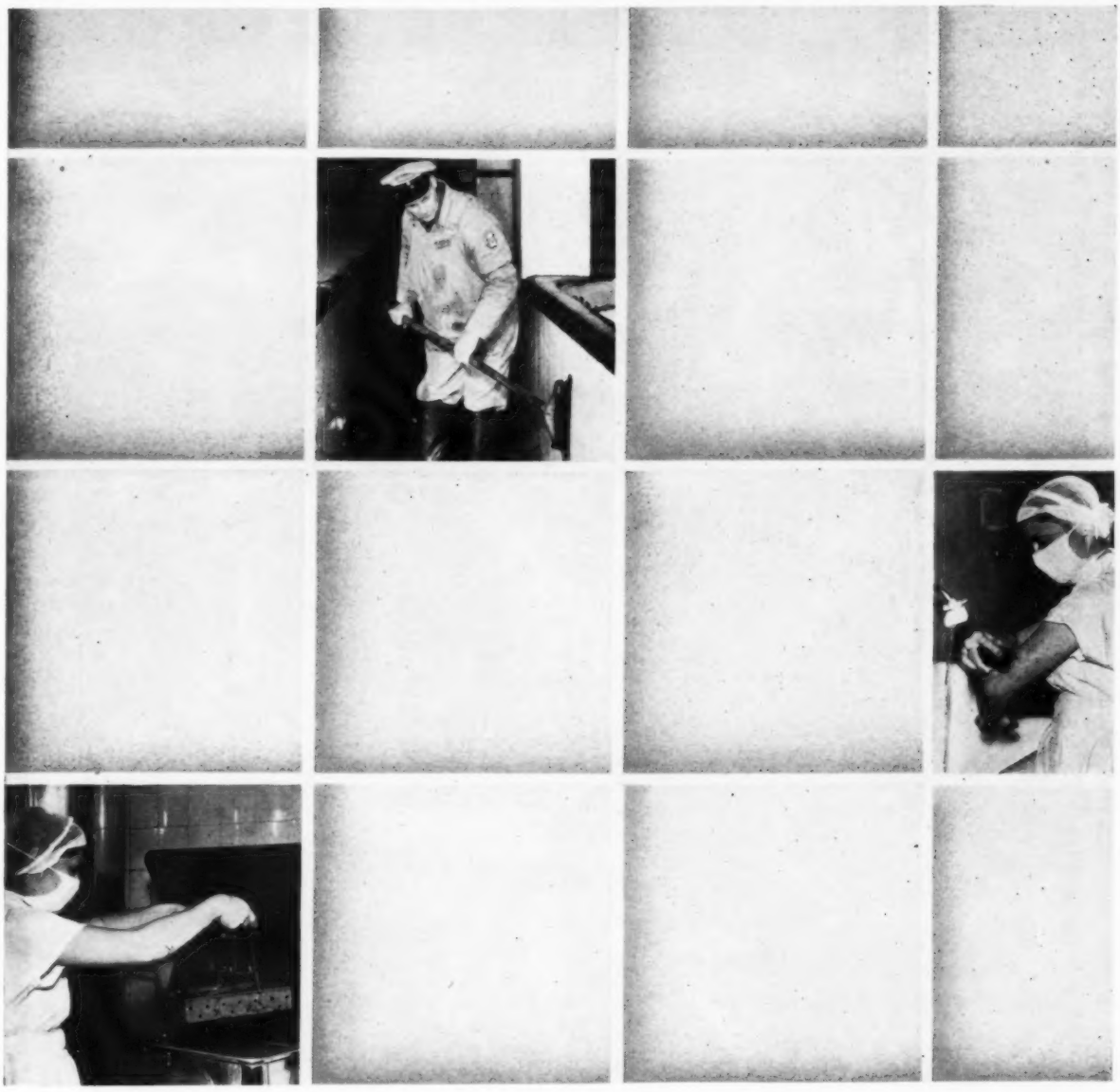

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It's easy to formulate cleaners and disinfectants that stimulate sales by using Monsanto Santophen 1 (ortho-benzyl-para-chlorophenol). Santophen 1 is deadly to germs. It is easy to incorporate into products such as cleaners for hospitals, rest rooms, locker rooms; into rug shampoos and germicidal soaps; into formulations for hospital use.

Santophen 1, which currently is in "tight" supply due to heavy demand, delivers these important qualities:

1. It is a single, stable compound with purity above 98%.

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5. It is easy to handle, light in color, nonstaining in solutions, with faint, nonpersistent odor.

Write for a copy of Monsanto Technical Bulletin No. O-51, "*Santophen 1 for Use in Disinfectants.*" It contains information of value to formulators. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.

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pick this
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It's Automatic!
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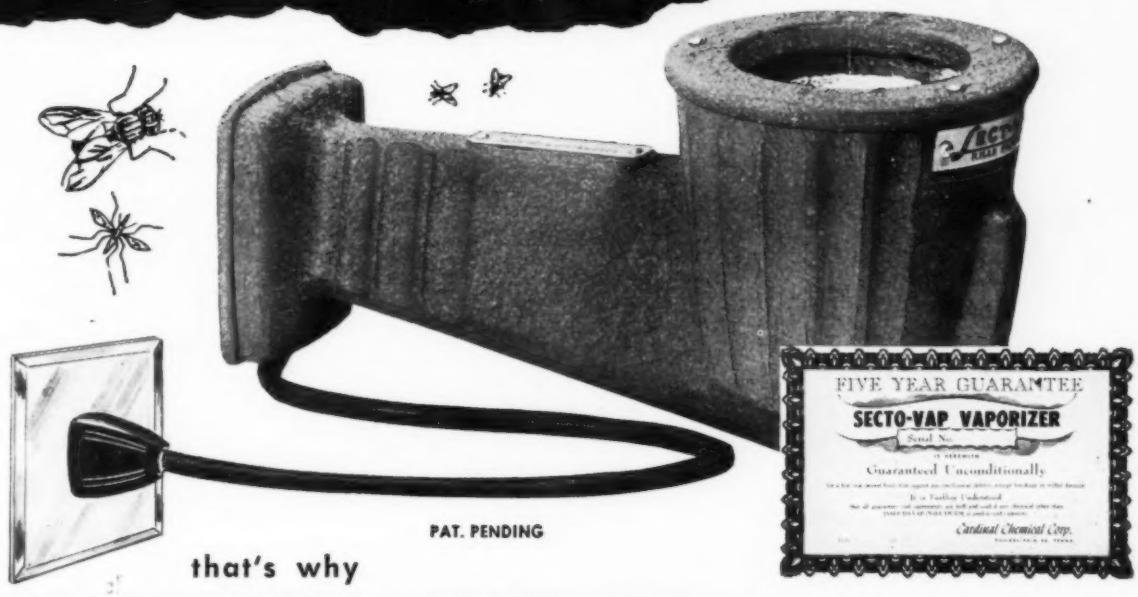

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has installed SECTO-VAP Vaporizers throughout their new modern kitchens and dining rooms.

SECTO-VAP is being used with satisfaction by leading restaurants, hotels, railroad commissaries, sports arenas, retail food stores, food plants, dairy barns, bakeries, candy plants, and other establishments.

- HARMLESS TO HUMANS, WARM BLOODED ANIMALS OR FOOD
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Combining High Viscosity
Foaming . . . Wetting
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THICKENS . . . aqueous solutions exhibit high viscosity without use of additives.

FOAMS . . . copiously providing highly stable small bubbles.

CLEANS . . . both hard surfaces and textiles.

EMULSIFIES . . . most common oils.

RINSES . . . easily with good drainage on dishes and glassware.

Suggested for use in industrial cleaning compounds . . . shampoos of all kinds . . . bubble bath preparations . . . cosmetics . . . buffing and polishing compounds . . . wettable sulfur . . . polishes . . . pigments . . . foam fire-fighting solutions . . . ore flotation solutions . . . household liquid detergents for dishes and laundry.

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Technical Data Sheet
No. Ind. 9

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in any of these products or processes . . .

1 Auto Polishes
2 Bottle Cap Linings
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4 Carbon Paper
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6 Coils and Condensors
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8 Fabric Treating
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10 Food Packaging
11 Hard Surface Floor Covering
12 Insulating Materials
13 Leather Belting
14 Leather Finishes and Dressings
15 Leather Packing
16 Lubricant for Ironers and Presses
17 Lubricant for Thread and Cord
18 Matches
19 Mold Lubrication
20 Paper Coatings
21 Paper Impregnating
22 Paper Sizings
23 Phonograph Records
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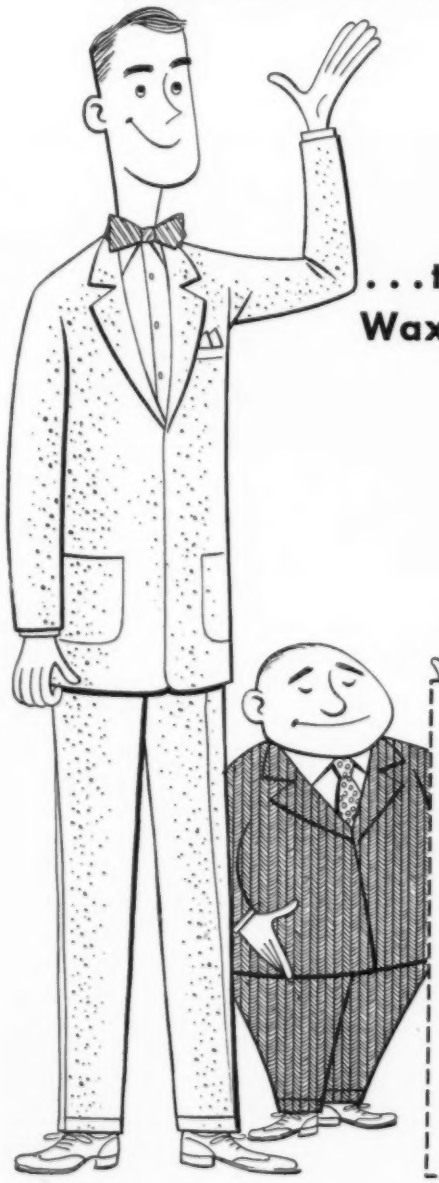
27 Rust Preventives
28 Self-Polishing Floor Wax
29 Sizing Materials
30 Soaps
31 Starches
32 Textile Finishes
33 Transformers
34 Water-Wax Emulsions
35 Wire and Cable Insulation



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Please send me informative technical data and price lists on Concord special waxes designed for the following uses (indicate numerals as listed above or describe more fully): _____

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INSECTICIDE
of greater
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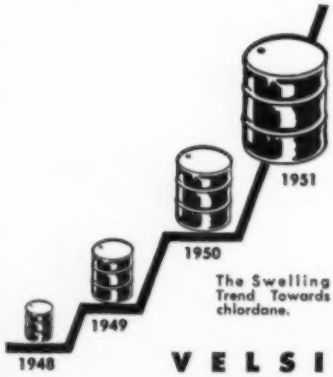

The Swelling Trend Towards chlordane.

In selecting a basic insecticide, it will pay you to get the facts on the many advantages of chlordane. Labatory and field tests over a period of years have established its effectiveness, practicability and economy as an outstanding insecticide in the proper control of a wide variety of insects.

Ease of formulation and application in dusts, wettable powders and emulsion concentrates affords added advantages which are responsible for the ever-widening acceptance of chlordane as the insecticide of greater versatility.

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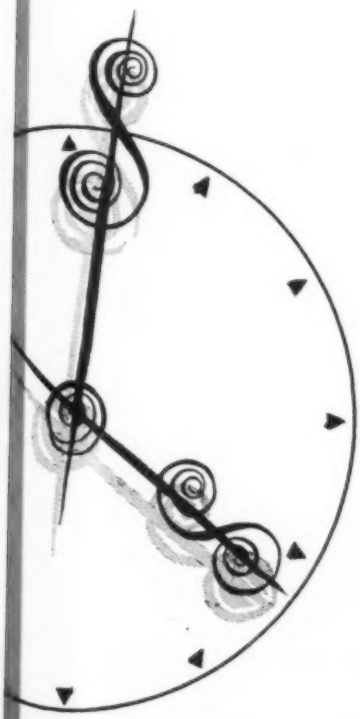
TIME FOR INVENTORY OF YOUR SALES APPEAL!

WITH A RASH OF NEW PRODUCTS invading the soap and sanitary chemicals market, *right now* is the time to take stock of your product's sales-appeal. And the scent of your product should be number one on your check list... for this is the reason most customers buy... or pass by... your product.

As one of the industry's largest suppliers of Essential Oils, deodorants and perfuming materials, MM&R can help *you* to neutralize the odor of your ingredients *more effectively*... and to add a more appealing, *longer-lasting* fragrance. Send us a sample of your product, and see how much we can do with it... for *how little!*

For full information write to the MM&R Technical Service Dept. No obligation.



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SINCE 1895... ONE OF THE WORLD'S GREATEST SUPPLIERS OF ESSENTIAL OILS

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SEATTLE, PORTLAND, SPOKANE: VAN WATERS & ROGERS, INC.

For control of roaches, ants, silver fish, red spiders and similar insects—ISOTOX Insecticides are applied by compressed air-type of equipment which forces Lindane directly into warm breeding areas, cracks, crevices, corners and hiding places. This system is preferred by many operators.

(Right) For control of clothes moths, carpet beetles and similar insects. Treat infested areas or areas where larvae are found. Aerosol equipment such as HI-FOG is extensively used for direct application as a space spray in hotels, theaters, homes and similar structures.

Only ISOTOX *INSECTICIDES containing* Lindane*

meet so many of your needs—so effectively

SPECIAL ADVANTAGES FOR P.C.O.'S

1. High potency, rapid action—and 3-way kill of pests (contact, stomach poison and vapor action). Lindane's high potency is approximately 10 times that of DDT, which means that lower dosage can be used.

2. Kills a wide range of insects, including clothes moths, carpet beetles, fleas, bedbugs, silver fish, house spiders, gnats, termites, powder post beetles, crab lice, human lice, flies, ants, roaches, earwigs, mosquitoes, lice.

3. Pleasant to use and practically odorless. Operators like to work with these insecticides.

4. Conveniently formulated for pest control operations.

Available in wettable powder, emulsive liquid or dust formulations.

Specify ISOTOX Insecticides or use *ORTHO* Lindane in your formulations. Write for free informative booklet containing full information on many uses of Lindane.

For general purpose insect control in kennels. Lindane's residual qualities make it especially suitable for flea and tick control—also for control of flies, mosquitoes, ants and ticks in kennels and farm buildings. Dr. R. A. Fulton and associates, working at Beltsville, Maryland, in the U. S. D. A., found that minute traces of Lindane vapors resulted in effective control (JOURN. ECON. ENT., April, 1950)

For control of fleas, bedbugs, lice, clothes moths and similar pests. Lindane gives best results when applied directly to cracks, crevices, bedsteads, sofas, mattresses, boxes or other typical hidden places — under furniture, margins of carpet, closets, shelves, trunks.

*Approved name for the 99%+"Pure Gamma Isomer" of Benzene Hexachloride.

ORTHO
SCIENTIFIC PEST CONTROL

T. M.'S REG. U. S. PAT. OFF. / ORTHO. ISOTOX

CALIFORNIA SPRAY-CHEMICAL Corp. Offices throughout U. S. A.
Elizabeth 2, N. J.; Orlando, Fla.; Oklahoma City; St. Louis, Mo.; Richmond, Calif.

World Leader in Scientific Pest Control

End Rest Room Odors Forever

Spray floors Once a day with

Glyco-Mist

If you want your rest rooms *really* fresh odored — *really* clean smelling — then use economical, long-lasting, fragrant GLYCO-MIST! After routine cleaning of floors and fixtures in rest rooms simply give the premises a light spraying of GLYCO-MIST and let this marvelous odor-killer do the rest of the work for you — *all day long!*

GLYCO-MIST penetrates all cracks and crevices — gets down in deep where the germs that cause foul odors are hidden — kills them right then and there — *stops odors where they start!* Soap and water won't kill germs — soap and water won't destroy odors — *but GLYCO-MIST definitely does kill germs and positively does stop, eliminate and completely destroy foul, disagreeable odors!* Gets rid of musty, stale, dank moldy odors commonly associated with mildew during the hot humid season.

"Glyco-Mist—America's Most Fragrant Deodorant-Air Sanitizer"

Spray on tile, terrazzo, wood or cement floors!

Doesn't cover odors —destroys them!

Reaches all cracks and crevices!

Kills putrifactive bacteria!

MAIL THIS COUPON *Today!*

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Please rush me a trial 4-oz. bottle of GLYCO-MIST with a FREE Plastic Sprayer. Also send prices and full information.

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PUT YOUR PRODUCT

out front
on display
in demand

Manufacturers of Room Deodorants, Insecticides, Formaldehyde Sprays, Detergents, Liquid Soaps, Polishes, Waxes and Cosmetic Products are all agreed they face keener, tougher competition in the days immediately ahead. These manufacturers also acknowledge the need for additional promotional and merchandising aids to make their products more acceptable, more saleable to the consumer.

Recognizing this need, the D&O Laboratories have developed a comprehensive series of tested Aerosol fragrances that are bound to add forceful, persuasive, compelling subtleties that will put your product...

out front, on display, in demand.

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What 50 productive years have meant to your industry

This year, we at American Can Company are observing our 50th anniversary.

Offhand, you wouldn't think our anniversary would be very important except to the 33,000 people who work for Canco. But may we remind you that this anniversary celebrates 50 productive years that have helped your industry grow and prosper?

During this half century, Canco's growth and co-operation with your industry have brought forth widespread process and product improvement—opening *new* markets and helping you sell in *all* markets more efficiently than ever before.

A good case in point is this Canco container. It is widely used for liquid polishes, insecticides, liquid detergents, oils, and other liquids where positive reclosure is essential.

The people of Canco are proud of this and the many other Canco contributions to this industry.

And it is our pledge for the years ahead that the inventiveness and ingenuity so characteristic of Canco will continue to explore and open up new areas of usefulness to your industry and to the consumers it serves.

1901—50TH ANNIVERSARY—1951

CANCO

AMERICAN CAN CO.

New York • Chicago • San Francisco • Hamilton, Canada

Deluxe
*S-D
SANITIZING CLEANER

***Sanitizing-Deodorizing**

Coefficient 3

The *all-around, neutral, self-rinsing cleaner* . . . for all general cleaning, sanitizing and deodorizing in the home, office or plant. Non-injurious to the skin, effective and safe to use.

Deluxe *S-D Cleaner will be popular with the trade because it aids in preventing the spread of disease germs, is easy to apply, odorless, attractive in color (opalescent), economical and safe. Absorbs obnoxious odors without leaving a masking odor.

At last here's a cleaner that gains good results on ALL types of floors, INCLUDING RUBBER AND ASPHALT TILE!

Deluxe *S-D Cleaner can be used *anywhere* and *any time* because it is *effective even in cold or hard water.* This feature is a great plus in sales appeal. For more details about Deluxe *S-D Cleaner write us immediately.

SEND FOR LATEST PRICE LIST CONTAINING A WIDELY DIVERSIFIED LINE OF BAIRD & McGUIRE CERTIFIED PRODUCTS.

Baird's

THE ONE AND ONLY . . . .

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CREATORS AND COMPOUNDERS OF THE BEST IN CLEANERS AND DISINFECTANTS FOR OVER 42 YEARS

SANITARY PRODUCTS
A SECTION OF SOAP

AT WHAT price should various and sundry household insecticides sell? That question has been batted around in the industry for twenty-five years and little agreement on the answer exists. That there have been those who believe in keeping the price down to encourage greater use, we well know. Others have maintained that prices, within a reasonable range, are not the determining factor in good or bad insecticide sales. The latter school holds that if the bugs are present, people will buy insecticides. If not, sales will suffer.

Recently in and around the Metropolitan area of New York, especially in certain New Jersey communities, for the first time in four or five years, infestation of mosquitoes has been heavy, particularly those little fellows who can crawl through most household screens. As a result, the demand for insecticides in that area has moved up sharply, aerosol types seeming to lead. Price does not appear to make too much difference. People are buying. Whether the generally high family income average is a factor at the moment, we do not know. It could be. But the fact remains, immediate need, and not anticipated need, appears to govern demand, and price differentials of ten to twenty cents per unit one way or the other do not seem to matter.

For the past several years, our guess is that household insecticide manufacturers generally have not set the world afire with their profits. Some firms have dropped out of the market for this reason. Such expansion in sales as has occurred has been chiefly in aerosol products, accentuated by the development of the low-pressure container. And where pricing fits into this picture in relation to demand and profits, nobody seems to know. If they did know, we imagine that there might be fewer headaches in the business and possibly better profits on a long range basis. This phase of household insecticide selling has been lacking real study for years, which conceivably could have led to numerous marketing mistakes. If there are any real data on how, when and why people buy insecticides, nobody would ever suspect it.

FOLLOWING catastrophes such as the recent floods in Missouri and Kansas, the demand for almost every type of sanitary chemical product shows a sharp rise. Frequently, supposedly in the interest of public safety, specific recommendations of products are made by municipal or state officials. Not always are such recommendations in keeping with sound technical practice. To substantiate this, we harken back to the great floods in Cincinnati and Pittsburgh some years ago when chloride of lime,—common calcium hypochlorite,—was specified for almost every conceivable disinfecting and decontaminating purpose. Only loud protests from the sanitary products industry brought a change, and that at a rather late date.

Standards of sanitation practice and products to be used following great floods and fires should be set up. If any uniform code now exists, we do not know of it. Prevention of epidemics, disposal of wastes, and a dozen other vital matters, all should come under a standard code which the industry, itself, should have an important part in writing, possibly under the over-all direction of the U. S. Public Health Service. Why not look into the matter further?

INSTITUTIONAL USES

By Florence W. Brewer

. . . great diversity in the choice and use of sanitary supplies in institutional field disclosed in a recent survey in a southern city

A VERY large number of factors enter into the selection of sanitary chemicals and equipment by institutional users, according to a survey conducted in a southern resort city of about 75,000. A similar study, undertaken recently, among industrial users highlighted the importance of economy, efficiency and the special problems of the individual user.

These three factors are, of course, influential in the use of sanitary products by institutions, but there are other considerations which carry weight. Some of these include purpose of building (restaurant, hotel, conventions, etc.), necessity for speed (distinguished from efficiency; i.e., a product may be efficient in that it is easy, effective and requires a minimum of labor, but may take too long to achieve results), preference of the maintenance personnel, and government regulations. Only two of the industrial users studied were in a field subject to government regulation.

The operation of all these influences makes for even greater diversity in the choice and use of sanitary supplies in the institutional field. It may also be of interest that this study, which was limited to a small number of institutions, gives the impression that those responsible for such purchases in institutions are perhaps not quite so firm in their allegiance to particular products as their opposite numbers in industry. One possible explanation of this impression may be that none of the institutions covered in the survey employ full-time purchasing agents.

The survey covered a representative sampling of institutions frequented by the public, including a department store, one large and one small specialty shop, a hospital, a college (day students only), a city school system, a theatre, a civic auditorium, a newspaper, a hotel, a tourist court and a restaurant.

In return for a guarantee of anonymity, most of the representatives who control sanitary purchases agreed to supply brand names. There were a few who were reluctant even so, and a number who did not wish to disclose the quantities purchased during a year. This makes general summary of products used for various purposes impracticable. Therefore, each institution will be covered separately, with a resume of the products used. Wherever approximate annual consumption figures are available, they appear in brackets following the first mention of the product.

Department Store

THE management of this store, which has four merchandising floors, approximately 200 employees, copes with its cleaning and sanitary problems in the simplest way possible. The store uses the services of outside contractors wherever feasible and deals with just one distributor of sanitary products. Cleaning and polishing linoleum tile and terrazzo floors, carpet shampooing and what exterminating is necessary are all contracted to professional organizations. Walls are painted when soil begins to show, rather than washed.

A. Cleaning agents

1. "Windex" (25 gals.) for windows and showcases

# of SANITARY CHEMICALS

2. Armour & Co. Soap Flakes (1 bl.) for outside show windows
3. Deodorant soap and disinfectant (200 gals.) from Selig & Co. as an all-purpose cleanser, disinfectant and deodorant for all sections of the store including washrooms

B. Hand soap—liquid coconut oil base soap from Selig & Co.

C. Machines—domestic type vacuum cleaners

Large Specialty Shop

THE superintendent of this store of four merchandising floors, approximately 250 employees, concentrates his purchasing generally in the tried and tested products with which he and his maintenance employees are familiar. However, he is exceptionally interested in more effective new products, especially those of the "double duty" type.

A. Cleaning agents
   1. "NL Concentrate" (National Laboratories) (100 gals.) for terrazzo, painted concrete and washroom tile floors, walls (after being dusted down), windows, wooden furniture and showcases, and washrooms.

Sweeping up the litter is just the first step in cleaning this auditorium. Spilled soft drinks, chewing gum, stepped on candy bars, ice-cream drippings, and other complications make cleaning difficult for maintenance crew.

2. Carpets are vacuumed daily with domestic machines and shampooed by an outside contractor. It is of considerable interest that plans are now under way to substitute rubber tile for all carpeting in the store. This will make it possible to replace quickly and inexpensively worn areas with new strips.
3. Cudahy's "Gibson Soap Polish" (100 lbs.) for lavatory basins and bowls.

B. Polishes and waxes — Johnson's Hard Wax (3 gals.) for wooden surfaces and "Allchrome" for metals.

C. Disinfectants—"Parkophene" disinfectant (Parker Co.) (20 gals.). The superintendent likes this product especially because it avoids the obvious pine odor of so many disinfectants.

D. Deodorants—"Deodorants are unnecessary with high standards of cleanliness."

E. Insecticides—professional exterminator when necessary.

F. Hand soap—"Puritan Olive Oil Soap" (55 gals.).

Small Specialty Shop

THE small specialty shop investigated has one and one-half selling floors, approximately 25 employees. The owner of this shop recognizes the necessity for maintaining high standards of cleanliness, but sees no reason why the cleaning processes should be complicated. To avoid any possible misunderstanding, let it be emphasized that this exclusive and high-

priced shop is clean. The result is attained with care and "elbow grease" rather than with a variety of products.

A. Cleaning agents.
   1. Liquid pine oil cleaner (50 gals.), incorporating a disinfectant, for floors, woodwork and washrooms.
   2. "Windex" for windows and display cases.

B. Deodorants—a fan changes the air in washrooms and air fresheners are used in dressing rooms.

C. Insecticides—professional exterminator.

D. Hand soap — "Ivory" (Procter & Gamble Co.) cake soap.

E. Machines — domestic vacuum.

Hospital

IT is obvious that this institution, having 80 beds and 20 bassinets, must have extremely high standards for its cleaning results and the sanitary products it uses. There is scrupulous attention to detail and a constant search for new and more effective products. Some product testing is carried out in the hospital's own laboratories, but the major portion is done in the industrial laboratory of a nearby manufacturing concern.

A. Cleaning agents.
   1. Waterless paste cleaner (12 gals.) for walls.
   2. A mixture of liquid soap (84 gals.) and "So-Hy" (276 gals.), or a similar brand, for concrete, tile and linoleum floors, washrooms, kitchens, operating rooms, basins, etc.
   3. Liquid window cleaner (24 qts.).

B. Polishes and waxes—liquid brass polish (1 gal.), liquid furniture polish (12 gals.), liquid floor wax (30 gals.) (thinned for use at one-half regular strength) to obtain a high gloss on the floors in surgery, and paste wax for the wooden floors in the nurses' home.

C. Disinfectants — "Zephiran" hydrochloride (480 gals.) and "So-Hy".

D. Deodorants — "Ozium" cartridges (24) and "Air Wick" (48 pts.).

E. Insecticides — "Zephiran" hydrochloride in a compressed air spray and DDT Aerosol Bombs (6) for flies, in addition to professional exterminator and sterilizing mattresses in an autoclave.

F. Hand soap — Colgate (Colgate-Palmolive-Peet Co.) cake soap (5760 cakes) for patients, "Dial" (Armour & Co.) cake soap (24 cases) for washrooms, and "Gealevin" (36 gals.) for surgical soap.

G. Machines — Waxers, motor driven floor cleaning machine, domestic vacuums. Three boys do nothing all day but run the waxing machines.

College

THE small day college has approximately 400 students, three buildings and a maintenance crew of three. When the college was about to move into new quarters recently, the business manager arranged for the representatives of all local distributors of sanitary products to demonstrate their lines. He chose the one distributor to fill all his needs whose products seemed to give the best all-round service.

A. Cleaning agents.
   1. "Liquid Pine Cleaner", with a soap base (50 gals.) for tile and terrazzo floors and washrooms, "Namco" Oil Base Sweeping Compound (100 lbs.) for concrete floors, "Waxola" Wax Base Sweeping Compound (300 lbs.) for waxed tile floors (used under the buffing machine and then swept), and "Namco" Heavy Duty Cleaning Powder (25 lbs.) for rough scrubbing of concrete floors (used in the scrubbing machine with automatic water control).
   2. "Glass Wax" (2 gals.) and "Windex" (10 gals.) for windows.
   3. "Blue Band Powder" (50 lbs.) for woodwork, painted surfaces and washroom fixtures.
   4. "Namco" Toilet Bowl Cleaner (6 qts.).
   5. Strong soap flakes (12 boxes) for washing kitchen utensils and "Old Dutch Cleanser" (6 cans) for scrubbing kitchen surfaces. Service in the lunchroom is entirely paper.

B. Polishes and waxes — Johnson's "Brown Label" Wax (15 gals.) for tile, terrazzo and wooden floors, some paste wax (1 gal.), "Namco" Furniture Cream (2 gals.) for woodwork and furniture, and liquid metal polish (1 qt.).

C. Disinfectants — "Pine Tree" Disinfectant (7 gals.).

D. Deodorants — deodorant blocks on wire hangers (6 doz.).

E. Insecticides — not necessary.

F. Hand soap — "Ivory" (Procter & Gamble Co.) cake soap (2 cases) and "Lava" Soap (144 cakes) in chemistry laboratory.

G. Machines — scrubbers and buffers mentioned above.

City School System

THE school system for the city studied has 16 school buildings, approximately 8000 pupils, and a maintenance crew of 35. Some of the school purchases of sanitary supplies are made on state contract and some direct from distributors. Evidence is strong in this case of the influence on choice of products of the individual worker's preference. Each janitor in the various buildings has his own pet brands and the business manager seems to take a more active interest in this phase of his work than might be expected.

A. Cleaning agents.
   1. "Puritine" (24 bls.) for general use, floors, washrooms, locker rooms, and cafeterias. Wooden floors are cleaned with "Varsol" (two 55 gal. bls.) followed by a treatment with a linseed oil mixture made up by the business manager's own formula. Some of the janitors use a wax base sweeping compound.
   2. Mild solution of paste wall cleaner (4 bls.) for walls. All walls washed once a year.
   3. A mild abrasive powder (25 cases) for windows. Most of the janitors prefer "Bon Ami". Venetian blinds are cleaned by outside contract.

B. Polishes and waxes — "Puritan Polish" for both cleaning and polishing furniture.

C. Disinfectants — "Clorox" and "So-Hy" (50 cases), a pine tar disinfectant (3 bls.) and Huntington Laboratories' disinfectant in locker rooms to prevent athlete's foot. The disinfectants double as deodorants.

D. Insecticides — "Gulf Spray" occasionally and creosote for termites.

E. Soap — varying brands of liquid soap (300 gals.) for both hand soap and scrubbing soap, washing powder (30 cases) in the automatic dish washers in the cafeterias. A sidelight on school problems: The children have a great propensity for pulling the wall fixtures out by the roots. When this happens and until replacements can be installed, bar soap, either from Armour or Swift, (40 cases) is used.

F. Floor machines — Tennant System machines, Guardian Chemical machines and Selig Co. general heavy duty machines.

Motion Picture Theatre

THE local motion picture theatre, which is medium in size and has 25 employees has the following requirements for sanitary supplies:

A. Cleaning agents.
   1. Scrubbing soap for painted concrete floors, carpets vacuumed and occasionally shampooed by contractor, mild soap and water for auditorium seats, "Windex" for windows and Tropical Paint Co. Cleaner for washrooms.

B. Polishes and waxes — brass polish.

C. Disinfectants — formaldehyde in very small quantities in washrooms.

D. Deodorants — "Worrell's Solvo" in hand sprayer for all purposes, washrooms, auditorium, etc. The theatre manager thinks this product is "wonderful".

E. Insecticides — hand spray.

F. Hand soap — soap powder in grinding machine dispenser.

G. Machines—industrial type vacuum.

Civic Auditorium

THE auditorium, which has a seating capacity of approximately 3000 and an average of 5 men on maintenance crew, is used for almost every imaginable purpose: dramatic shows, concerts, conventions, exhibitions, sports events (basketball, hockey, boxing, wrestling), dances, banquets, youth recreation, etc. It is easy to see how the process of quickly changing from one type of event to another would be a real problem to the manager. As little as an hour is not uncommon between the close of a Boy's Club party, with chewing gum, ice cream and soft drinks spilled on the floor, and the opening of a symphony concert. Speed is undoubtedly the most important consideration. An estimate of the quantities used annually was impossible for the manager to make because of the unpredictable and varying number of bookings.

Banquets are catered by a nearby hotel, so the manager is spared at least the problem of running and cleaning a kitchen.

A. Cleaning agents.
   1. "NL Concentrate" (National Laboratories) for all types of floors, terrazzo, concrete and wood, and for washrooms. "Blue Band Powder" for grease spots. "Misto", sprayed on floors, settles dust and disappears.
   2. "Bon Ami" or "Windex" for windows. "Vani-Sol" (National Laboratories) for washroom bowls and basins, and all disinfectant purposes.

B. Polishes and waxes — "Moro-Gloss" for cleaning and polishing aluminum entrance doors, heavy wax on stage, floor-sealer for basketball games, "Dance Spangles" (granulated wax) for dances. As the manager says, the cleaning crew just doesn't have time for any more "spit 'n' polish" than is absolutely necessary.

C. Deodorants — "Air Wick" in dressing rooms.

D. Insecticides — professional exterminator.

E. Hand soap — liquid olive oil base soap.

Footnote: Five years ago an Army unit stationed in the city left a 55 gallon drum of this soap. It is still going strong.

F. Machines — combination scrubber, polisher and buffer, and medium size vacuums.

Newspaper Plant

THE cleaning problems of the newspaper office and press fall into two distinct groups, the public rooms and offices in one and the press and composing rooms in the other. Some of the walls are painted every year instead of being cleaned. The newspaper building has three floors and there are approximately 250 employees.

A. Cleaning agents.
   1. Franklin's "Rubber Gloss Cleaner" (55 gals.) for tile and rubber tile, Cudahy's "Solv" (250 lbs.), a pine oil soap powder mixed with the former cleaner for concrete floors in press rooms and washrooms. A foam cleaner for the only carpet in the building in the radio studio.
   2. Water and vinegar (5 gals.) for windows and glass brick walls, with "Solv" added to this mixture for use in the ink room.
   3. "Welborn" cleaner (24 gals.) for wooden furniture, saddle soap for leather, "Gibson's Soap Polish" (200 lbs.) for composition desk tops, aluminum office furniture and metal fixtures.
   4. Cudahy's "Synthetic Oil Soap and Disinfectant" (30 to 35 gals.) for washrooms (a triple duty product as no other disinfectant or deodorant is used).
   5. Press and composing rooms — "Solv" and gasoline (300 gals.).

B. Polishes and waxes — Franklin's "Rubber Gloss Wax" (110 gals.) for floors, Franklin's "furniture polish" (2 gals.), and "Shaw-Walker Wax" (8 to 10 gals.) for composition desk tops.

C. Insecticides — outside contract.

D. Hand soap — "Lux" (Lever Brothers Co.) bar soap (8 cases, 250 to a case), "Klex" bar soap (8 cases 100 bars to a case), "Ink Solvent Powder" (600 lbs.) and

(*Turn to Page* 149)

Aerosol space spray being applied to cabin interior of an airliner.

Insect Control on Aircraft

By Ralph W. Sherman Bur. Ent. & Plant Quarantine, U.S.D.A.

LIQUEFIED-GAS aerosols are now standard equipment for applying public health and plant quarantine sprays for airplane disinsectization. Possibilities of introducing insects of public health and plant quarantine significance have been a concern of the U. S. Public Health Service and the Bureau of Entomology and Plant Quarantine ever since flights from foreign ports and insular possessions began in 1927.

That this problem is of worldwide significance has been recognized by the International Civil Aviation Organization. ICAO's Committee on Facilitation of International Air Transport has recommended to Contracting States a procedure for carrying out disinsectization of aircraft. Recommended procedures are substantially those already followed in this country, with one exception. That is they recommend that when a Contracting State requires insecticidal treatment of aircraft in the interest of agriculture or food conservation, a single treatment should be employed that also meets the requirement of public health. A general purpose spray of this type is still to be developed. Available sprays that are lethal to all dangerous insects present may not be used while passengers are aboard.

There were indications as early as 1943 that Japanese beetles were using airplanes to hitchhike from infested airfields in the eastern United States to distant points. Traps operated at a St. Louis airport that summer turned up a solitary beetle that evidently came in by plane.

Records of Public Health aircraft inspections further emphasized the hazard of insect spread by this means. During the year ending June 30, 1946, for example, examination of 22,656 arriving foreign aircraft showed that 7,421 harbored arthropods (insects, spiders, mites, ticks, etc.) of various kinds. Over 1,000 of these planes contained mosquitoes, 75 of which were still alive. Total arthropods removed from the 7,421 planes totalled 24,879, with 1,083 living. Of this total mosquitoes numbered 1,707. These interceptions were made at Brownsville, Honolulu, Miami, New Orleans, San Juan, and Terminal Island. During the summer months interceptions were about double those for the remainder of the year. Further aircraft entomological inspections of USPHS resulted in 21,751 such interceptions in 1948, 23,531 in 1949, and 23,421 in 1950.

Some 2,600 species of stowaway insects have been intercepted from foreign transport planes over a period of years by the several agencies concerned with aircraft inspections.

Public health aircraft aerosoling

A FREON-PROPELLED aerosol was first applied to aircraft by the U. S. Public Health Service about July 1942 as part of its international quarantine procedures for aerial navigation. Public Health Service entomological quarantine activities are aimed at preventing the introduction of insects and other arthropods that are known or suspected carriers of the causative agents of yellow fever and other diseases of man. Some of the Service's quarantine entomological work from 1938 to 1942 involved the spraying of aircraft in Colombia, Venezuela, and the British West Indies. Entomological inspections of these planes were made at certain Caribbean ports and finally at Miami. Actual inspections were made of plane interiors. Specimens found were collected by hand for later determination. This was followed by the use of hand sprayers for the application of pyrethrum formulations. The first Freon aerosol formulation used by the Public Health Service in planes arriving at Miami contained 2 percent pyrethrins derived from a 20 percent pyrethrum extract. It soon became apparent that an insecticidal aerosol afforded an easily-applied, effective space spray to control mosquitoes and other arthropods of public health significance. A DDT-pyrethrins freon-propelled aerosol was first used by the Public Health Service in 1944.

For use in aircraft, Public Health Service regulations prescribe an insecticidal aerosol containing not less than 1% pyrethrins and 3% DDT, or an insecticide substantially as effective. This is primarily for the destruction of mosquitoes and flies. It is released in the cabin compartments of an inbound foreign plane at the rate of at least 5 grams per 1,000 cubic feet of enclosed space. A three-minute exposure period with closed ventilators is required. This dosage must be released not later than 30 minutes prior to landing at an United States port. It may be performed while the plane is on the ground immediately before take-off, but is usually done by the stewardess while aloft.

One of the first inquiries of the pilot when a plane lands is, "Has the plane been aerosoled?" If the plane's "General Declaration" or an inspection of the interior show that the aerosoling was not properly performed, the USPH representatve may order the loaded plane held for further spraying.

Spraying underside of baggage and express compartment with an insecticide before opening hatch of airliner arriving from a foreign port.

Insecticidal aerosol G-382, the first pyrethrins-DDT formula approved by the Public Health Service for use in aircraft was authorized in the Surgeon General's "Insecticide and Disinsectization" regulations published in the Federal Register, September 2, 1948. This was adopted after extensive testing of many formulas by U. S. D. A. Bureau of Entomology and Plant Quarantine scientists at the Beltsville, Md. research center. Formula G-382 includes, in percentage by weight, pyrethrum extract, purified (20% pyrethrins) 5%; DDT 3%; cyclohexanone 5%; lubricating oil (SAE 30) 2%; and Freon "12" (dichlorodifluoromethane) 85%. The regulations also authorize the substitution of an insecticide found by the Surgeon General, upon application by an interested party, to be substantially as effective as formula G-382.

Continued improvements in aerosol formulations have been sought by research workers at Beltsville and at the Public Health Service's insecticide testing laboratory at Savannah. Substitute insecticidal ingredients have been tested with or without the addition of synergists. A variety of solvents have been tested. In some tests Freon "12" has been replaced in whole or in part by another liquefied gas propellant. This continued search for better aerosols has resulted in several changes in formula as more effective combinations were developed.

One result of these tests was the adoption of an alternate public health aerosol formula. The second formula approved eliminated the objections of some users to the cyclohexanone content of G-382. The new formula, designated as G-651, replaces cyclohexanone with alkylated naphthalenes. This new formula contains, in percentage by weight, pyrethrum extract, purified (20% pyrethrins) 6%; DDT 2%; methylated naphthalenes (either Sovacide 544-G or Velsicol AR-60) 8%; and Freon "12", 84%. Use of this formula as a substitute for G-382 was authorized by the Public Health Service on March 28, 1949. It has largely replaced G-382, although many airlines still use the original formula.

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Before approving any aerosols intended for use while passengers are present, formulas must be carefully checked for irritation to skin, eyes, and the respiratory system. Passenger psychology also enters into the formulas adopted. It was found in the Hawaiian aerosol work, for example, that a small percentage of oil of pennyroyal proved to be the most effective mask for the aerosol odor. Only 1 ml. of the oil per 1,814-gram bomb-contents is needed. This pungent, spicy oil imparted a more pleasing odor than several other additive perfumes.

Further stimulus was given to aerosol use in planes during World War II. As liners of the Air Transport Command extended their operations on a global basis, aerosols containing pyrethrum and sesame oil were adopted to destroy insect marauders.

Through an agreement with the Public Health Service in June 1946, inspectors of the Division of Foreign Plant Quarantines assumed the responsibility of checking on the en route disinsectization of foreign planes landing in Hawaii.

Plant Quarantine Sprays

SUPPLEMENTING the pre-landing public health spray, aerosol space sprays have been prescribed as the so-called "agricultural sprays" to be released in planes arriving from foreign countries. These are for the purpose of destroying stowaway insects that may not be immobolized or killed by public health sprays. Use of such sprays was initiated by the Division of Foreign Plant Quarantines in September 1946. This type of spray is applied to baggage and cargo hatches of arriving foreign planes after passengers have debarked but before baggage and cargo removal. After such removal spot checks are made for dead insects in the plane. These specimens are collected for identification. The same agricultural spray is used in treating planes departing from Hawaii and Puerto Rico for the United States mainland.

Formula G-651 is used for the agricultural spray applied in unoccupied planes at Honolulu. For this purpose the concentration is increased to 30 gm. per 1,000 cubic feet and the exposure period to 10 minutes.

As a part of preflight certification of planes leaving Hawaii for the United States mainland, plant quarantine inspectors started in February 1948 the treatment of airplanes with the 5 gm. per 1,000 cubic feet dosage aerosol after passengers have been loaded and just before the plane taxies from the loading apron. Due to the presence of the Oriental fruitfly at Hawaiian airfields, this preflight aerosoling has been augmented to provide for the release of a 7.5 grams per 1,000 cubic feet dosage of formula G-651, with a 10-minute exposure period. The last minute treatment is given to take care of any adult fruitflies that may enter the plane with passengers just before departure. It supplements the heavier agricultural dosage released in the plane just prior to loading.

Similar preflight aerosoling of all direct domestic flights from Puerto Rico to the United States mainland began on April 15, 1949. One of the airlines started aerosoling their planes four days prior to this date. At San Juan, a 5-gram dosage of G-651 is used. The same treatment was extended to foreign in-transit flights stopping at Puerto Rico en route to the States beginning July 1, 1949.

Portable equipment for the automatic dispensing of an insecticidal aerosol was installed in two Military Air Transport Service planes at Honolulu early in 1949. This "push-button" method of application has passed the experimental stage successfully. Such equipment has also been installed in several other MATS transport planes.

Aerosol "Debeetling" of Planes

COOPERATION of the armed services in preventing aerial movement of Japanese beetles from airports in heavily-infested areas was secured in the summer of 1944. Also in that year federal inspectors visited commercial airlines to inform them of the dangers of such spread.

The following summer, compartments in Army and Navy planes leaving service fields during heavy beetle flight were treated with Bureau-furnished DDT-pyrethrum aerosols. Clothing of passengers and crew of both service and commercial lines was inspected as they entered planes. This inspection also extended to baggage, mail and other parcels, as well as to the interior of planes.

Also, in 1945, cooperative experiments were carried on to develop interior residual sprays to kill any beetles that evaded detection and to develop a beetle-killing aerosol treatment that might be released in non-passenger compartments just prior to take-off, while passengers were aboard.

Trapping in 1945 resulted in the capture of a few beetles each at airports as widely scattered as New Orleans, La.; Savannah, Ga.; Chesapeake, O.; Charlotte, N. C.; Charleston, S. C., and Memphis, Tenn.

Aerosoling of planes for beetle control became a routine procedure in 1946. Airport personnel at four large eastern airfields treated 3,654 planes prior to their departure. This work was further expanded in 1947 to include application of DDT residual sprays to 6,300 commercial planes and 4,600 military planes. Supplementing the treatment, inspectors at five airports removed 2,800 beetles from passengers and baggage, and DDT was sprayed on preferred food plants of the beetle surrounding six heavily infested fields.

A method similar in appearance to aerosoling was inaugurated at Japanese beetle infested fields during the summer of 1948, as a means of applying a residual coating of DDT to the interior surfaces of baggage and cargo compartments of planes. Using a heavy bomb casing, DDT is dissolved in methylene chloride and charged with carbon dioxide, in combination with a small amount of Freon, in sufficient quantity to produce a pressure of 100 p.s.i. within the container. The gas propels the insecticide with considerable force, resulting in a uniform coating on all interior surfaces of the plane. Due

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to the large particle sizes of the mixture ejected, this does not qualify as an aerosol. Airline employees, however, commonly regard this as one of the routine aerosols.

An initial application of the residual spray is applied just before Japanese beetles start their heavy flight. For planes continuing operations at infested fields a second application is made a month later. By holding the nozzle about a foot from the surface and rotating it with a circular motion covering one square foot per second, a dosage of 100 mg. of DDT per square foot is deposited. This produces a uniform deposit that is not easily detected without close examination. Applications are confined to the floor and lower half of the walls in all baggage and cargo compartments of military and commercial passenger and cargo type planes. Metal is not corroded by this deposit. Plexiglass is avoided, however, and care is taken not to spray rugs, or fabric, leather or synthetic upholstery or soundproofing materials. The operator is advised to wear a mask equipped with an organic vapor disc.

These residual sprays are necessarily of higher toxicity. The latest concentrate formula used, No. G-480, employs DDT 10%, Velsicol AR-60 5%, methylene chloride 65%, and Freon "12" 20%.

The 1948 work totalled 12,660 space and 2,175 residual DDT gas-propelled treatments at 20 military and 17 commercial airfields in nine states and the District of Columbia. This approximated the 1949 summer activities, when 12,931 aerosol space sprays were applied. Further, in 1949, 1,214 planes received a single gas-propelled residual spray and 967 planes were given two residual applications.

The 1950 work totalled 15,372 space and 1,593 residual DDT aerosol-applied treatments. These treatments were applied at 12 civilian and 12 military airfields. Beetle removals totalled 705 from passengers' clothing and 423 from plane cargo compartments.

The formula employed in 1950 for the Japanese beetle space spray, known as insecticidal aerosol G-199, in percentage by weight, included pyrethrum extract (20% pyrethrins) 2%, DDT 3%, Velsicol AR-60 15%, and Freon "12" 80%.

During 1950, empty planes exposed to beetle infestation while parked or being serviced were treated throughout with space spray No. G-199 before loading and kept closed for five minutes. It requires only 12 to 15 seconds to release a dosage of 20 grams per 1,000 cubic feet in the pilot's compartment, front baggage section, and passenger compartment in a C-47 type plane. With outside doors and windows closed and all inside doors open, the operator starts this space spray treatment at the front end of the passenger compartment. The spray is directed upward from about waist height through the door into the pilot's compartment. Then the operator backs up slowly to the rear door, quickly exits, and checks the 5-minute exposure period.

In addition this same spray was released in all non-passenger baggage compartments of planes leaving during daylight hours for non-infested states, Bermuda, Canada, or Puerto Rico. The compartments were aerosoled immediately before the plane taxied from the loading ramp.

Aerosol Preparation

OPERATIONS during the summer of 1949 required the use of over 1,100 four-pound bombs, divided almost evenly between those used for the aerosol space sprays and those for laying down the residual deposit. Many of these had repeated refills. Quantities of war surplus stainless steel oxygen breathing cylinders with valve adapters were used in both the Japanese beetle and foreign plant quarantine activities. These are light, inexpensive, and eliminate the corrosion problem.

A bomb-filling station has been set up at the Beltsville, Md. Aerosol Laboratory of the Bureau. This supplies the aerosol and residual bombs needed for the treatment of planes in Puerto Rico, Hawaii, and various Eastern airfields. At this central supply, bombs are filled and shipped to points where used. Empty bombs are returned to the loading station for reconditioning and refilling. During 1950, 264 four-pound bombs were filled and shipped to Puerto Rico, while 1,457 four-pound and 306 one-pound bombs were distributed to airfields in the East.

Another bomb-filling establishment has been set up in Hawaii to supply the large quantities of aerosol bombs used there. Chemical concentrate for these bombs is prepared at Beltsville. Approximately 100 gallons of this concentrate was prepared and shipped to Hawaii in 1950.

Developments in liquefied-gas aerosols have furnished potent weapons to those concerned with entomological problems involving threats to our health and agriculture. Aerosols have demonstrated their usefulness in destroying dangerous pests arriving from foreign countries by speedy air travel. They have also ably supplemented the diverse activities to prevent the dissemination of injurious fruit flies and the Japanese beetle to sections of the United States not yet afflicted with these pests.

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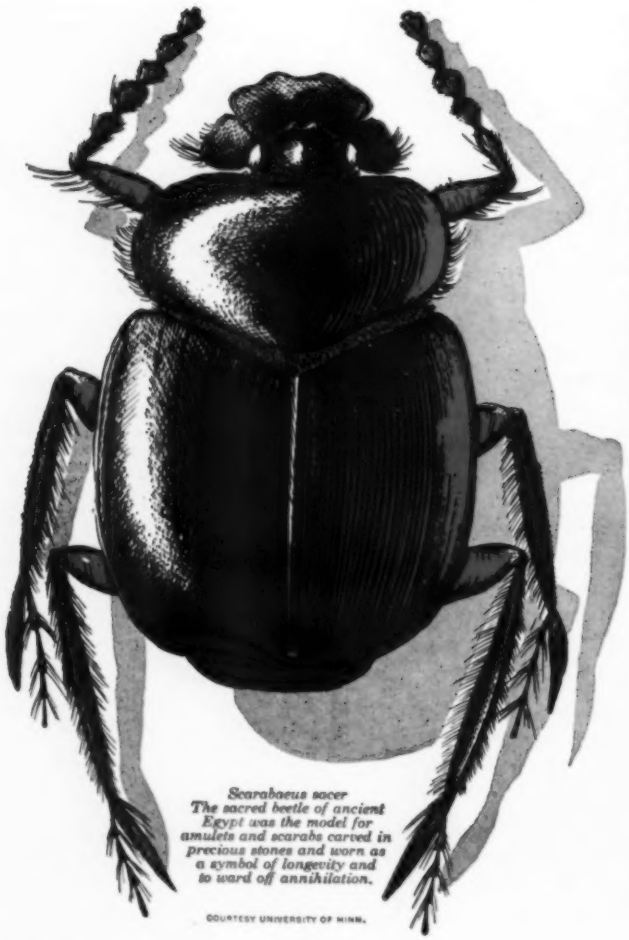

Scarabaeus sacer
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Evaluation of

Liquefied-Gas Aerosols

By R. A. Fulton, R. H. Nelson and A. H. Yeomans*
Bureau of Entomology and Plant Quarantine, U. S. D. A.

INFORMATION obtained during World War II and subsequent experience have demonstrated that the safe and effective use of liquefied-gas aerosols requires careful appraisal of the ingredients used as toxicants, solvents, and propellents. The utility of aerosols is also dependent on the size of the particles and the efficiency of the dispenser.

Liquefied-gas aerosols are covered by a patent issued to the Secretary of Agriculture. Non-exclusive licenses to operate under this patent are issued by the Department. Included in the licensing agreement is an administrative provision whereby licensees agree to use toxicants and propellents acceptable to the Department of Agriculture. The formulation must be such that the percentage of non-volatile ingredients is not more than 20%. Analytical procedures for the determination of non-volatile and volatile ingredients in aerosols have been compiled for military purchase specifications (MIL-I-10745 (QMC) Dec. 6, 1950). The aerosol must also produce a system of particles suspended in air 80 percent of which are less than 30 microns and no particles more than 50 microns in diameter.

Particle-size Determination

IN the determination of particle size of aerosols by the method described by Yeomans (8), there has been some question as to the direction of the movement of the glass slide through the aerosol fog to obtain satisfactory impingement. When the slide is waved by hand, it should be moved toward the nozzle. The distance from the aerosol nozzle to the point of waving should be about five feet. There has also been some difficulty in controlling the number of particles on the slide. In most cases too much spray is obtained on the slide so that some of the particles impinge on top of others. This difficulty may be reduced by using a large exhaust fan (2400 cubic feet per minute) to draw the aerosol past the point where the slide is being waved. This modification permits the operator to stand farther from the point of release, thus obtaining fewer particles on the slide. A satisfactory slide for particle-size counts should have about 1/500 of its surface covered.

The procedure for impingement of particles on the slide has been modified by using an impactor consisting of a small variable-speed motor equipped with a counter-balanced slide holder. The slide revolves at a four-inch radius around the center of the motor in a direction perpendicular to its movement. The motor unit is mounted in the center of a 21-inch tube 36 inches long, and air containing the aerosol is drawn through with a ventilating fan. A fan with a capacity of 2400 cubic feet per minute has been found satisfactory for this purpose. The maximum speed at which the slide can be revolved to obtain a good sample, or approximately 800 r.p.m., is equivalent to about 19 mph. With greater speeds the large aerosol particles were found to move across the slide and distort their true size. For all types of commercial aerosols a speed equivalent to 10 mph. is recommended. The aerosol should be released four feet from the impactor, using about 0.3 gram of total aerosol. Air should be drawn past the impactor at approximately 12 mph.

The particle-size distribution of a commercial aerosol as obtained by the two methods is shown in Table I, in which a comparison of particle-size distribution is obtained with the impactor and the waved slide.

Nozzles and valves

THE proper design of nozzles and valves is important to the production of aerosols of the desired particle-size (5). Particle-size may be changed by varying the size of the orifice and the structure of the valve through which the material must pass. The

TABLE I

Diameter of particles (microns)	*Impactor rotated at—* 19 *mph*	12 *mph*	*Waved slide*
5	3	2	2
10	25	18	20
15	56	48	50
20	80	75	70
25	87	90	87
30	94	96	96
35	97	98	98
40	99	99	99
45	100	100	100
50	—	—	—
Median diameter (microns)	15	16	15

* Presented before 37th Midyear Meeting, Chemical Specialties Manufacturers Association, Chicago, April 30, 1951.

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most practical type of nozzle is one that incorporates an expansion chamber between two orifices. The most satisfactory ratio of size of the inside orifice to the outside one is approximately 2:3 (4). The restricted inside orifice may be designed as a mitering rod, loose-fitting pin, or any type of device that will give a satisfactory drop in pressure before the solution reaches the expansion chamber. Where a high discharge rate is necessary, a satisfactory aerosol may be produced with long capillary tubing. The resistance to flow of a liquefied gas within such tubing is insignificant when compared with that of other liquids.

In the valves now being marketed a rubber-like material or nylon is used for the seat of the valve. The sealing material has been one of the most costly items in the development of valves. The solvents that are necessary in aerosol formulations usually cause swelling or some other deleterious action on the valve seat. The performance of a valve can be determined only after a long test program. Our standard test program includes containers stored at temperatures from 32° to 120°F., with the valves in two positions, up and down.

Biological evaluation

THE biological evaluation of household aerosol formulations is made by the Tentative Official Test Aerosol method (1), with a dosage of three grams of the aerosol per 1000 cubic feet, as specified in a later publication (2). Formulations must pass this test in both 15-minute knockdown and one day kill. In the work at Beltsville, Md., the spraying is done from a calibrated dispenser rather than directly from the commercial container, in order to insure exact dosages. Of the two procedures for determining mortality (1), the aerosol test mortality procedure is used.

Greenhouse type aerosols are approved on the basis of experimental results. Information is also required on plant tolerance (3).

All ingredients to be used in making up a household aerosol must have been investigated carefully by competent officials or private pharmacological laboratories and found free of health hazard when used as directed. Toxicological data are required particularly on the inhalation and skin-sensitization hazards.

The health hazards in the handling of the toxic materials used in greenhouse aerosols, especially parathion and tetraethyl pyrophosphate, require the use of gas masks and protective clothing.

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Wax as Metal Lubricant

The use of some waxes as metal working lubricants was announced recently by S. C. Johnson and Son, Inc., Racine, Wis., as a result of production tests conducted in a variety of metal working manufacturing plants. According to these tests, Johnson reports, special blends of waxes used in place of conventional lubricants permit the drawing of stainless steel far beyond its theoretical capacity. Waxes may also serve as a replacement for the copper flashing on stainless steel wire used for cold heading. Wax blends are also proving useful in the drawing of aluminum. Metal fabricators find that the use of wax as a lubricant extends the life of tools and dies, and in some cases eliminates completely degreasing.

The versatility of waxes as lubricants has also become apparent in other metal working operations. A major aircraft company is successfully using wax as a lubricant in the shoe bending of hard alloy tubes. Wax not only reduces the bending pressure from four tons to two and one-half tons, but also materially reduces the loss from crimping and buckling.

Insecticide Sprays

Methoxychlor, DDT and dichlorodiphenyldichloroethane were tested in kerosene space sprays against adult flies. Results in knockdown potential and LD_{∞} are listed as follows, in the order of decreasing effectiveness:

Knockdown Potential (25 minutes)

Methoxychlor
2,2-bis(p-chlorophenyl)-1, 1-dichloroethane
DDT

LD_{∞} (24 hours)

DDT
Methoxychlor
2,2-bis(p-chlorophenyl)-1, 1-dichloroethane

R. H. Nelson, et al *J. Econ. Entomology* 43, 393-4 (1950).

Temperature and Toxicity

A series of tests analyzing the effect of temperature on the toxicity of certain organic insecticides to the cockroach indicated that of the products tested, temperatures exerted the greatest effect on the toxicity of DDT. DDT, pyrethrins and lindane gave best results at the lowest temperatures, while aldrin and dieldrin gave best results at the highest temperature. *J. Econ. Entomol.* 43, 559-60 (1950).

New Ion Exchange Unit

A new unit, known as the "Dual Bed" ion exchanger, consisting basically of a single tank, designed especially for use in industrial plants for the conditioning of boiler feed water, was announced recently by Permutit Co., New York. The unit lowers or removes the alkaline content, and employs new type resins that are regenerated with plain salt. In most industrial applications, the new unit will serve to (1) remove the scale producing salts, and (2) remove alkalinity, which forms carbon dioxide in the boiler and corrosive carbonic acid in condensate return lines.

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What the Public Health Service Expects of

GERMICIDES...

By L. A. Black*

Chief, Milk and Food Sanitation Section,
Research and Development Branch
Environmental Health Center, Cincinnati

BY definition, a germicide is any substance or agent which destroys germs or microorganisms. Physical agents commonly used such as moist or dry heat are not effective unless the temperature is sufficiently high and the length of time the microorganisms are exposed is adequate. Similarly, chemical germicidal agents are not effective unless the microorganisms are exposed to a sufficient concentration for an adequate length of time. Additional factors commonly affecting the efficiency of chemical germicides include the type of chemical compound, the type of organism present, the temperature of exposure, the pH of the germicidal solution, the amount and type of organic matter present, and the presence of any other neutralizing or interfering substances.

Obviously then in order to be sure a germicide will fulfill its purpose, influencing factors must be considered whenever specifying germicides and the conditions under which they may be used. The Public Health Service does this on Interstate Carriers over which it has legal jurisdiction in the control of sanitary conditions. The Public Health Service also seeks to prevent disease transmission through milk and food products by giving advisory services to State and local regulatory authorities, and in this way aids in promoting well-balanced sanitation programs, stimulating adoption of effective legislation and encouraging adequate enforcement. In the ordinances and codes recommended by the Public Health Service for adoption by States and municipalities, certain requirements for bactericidal treatment are specified.

* Presented at 37th Midyear Meeting, Chemical Specialties Manufacturers Association, Chicago, May 1, 1951.

Interstate Carrier Sanitation

SECTION 72.4 of the Interstate Quarantine Regulations[1] entitled "Effective bactericidal treatment" states "Whenever, under the provisions of this part, bactericidal treatment is required, it shall be accomplished by one or more of the following methods:

(a) By immersion of the utensil or equipment for at least two minutes in clean hot water at a temperature of at least 170°F. or for one-half minute in boiling water;

(b) By immersion of the utensil or equipment for at least two minutes in a lukewarm chlorine bath containing at least 50 p.p.m. of available chlorine if hypochlorites are used or a concentration of equal bactericidal strength if chloramines are used;

(c) By exposure of the utensil or equipment in a steam cabinet at a temperature of at least 170°F. for at least 15 minutes or at a temperature of 200°F. for at least five minutes;

(d) By exposure of the utensil or equipment in an oven or hot air cabinet at a temperature of at least 180°F. for at least 20 minutes;

(e) In the case of utensils or equipment so designed or installed as to make immersion or exposure impractical, the equipment may be treated for the prescribed periods of time either at the temperatures or with chlorine solutions as specified above, (1) with live steam from a hose if the steam can be confined, (2) with boiling rinse water, or (3) by spraying or swabbing with chlorine solution;

(f) Any other method determined by the Surgeon General, upon application of an owner or operator of a conveyance, to be effective to prevent the spread of communicable diseases."

Milk Sanitation

SIMILAR provisions are contained in the Milk Ordinance and Code[2] recommended by the Public Health Service for adoption by States and municipalities, which is now in effect in 1468 municipalities, 367 counties and sanitary districts and state-wide in 11 states, Alaska and Hawaii, a population of over 60 million. The following revision of Item 14r has been suggested for adoption in the next edition *"All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk or milk products shall, before each usage, be effectively subjected to an approved bactericidal process with steam hot water, hot air, or chemicals."*

"By 'approved bactericidal process' is meant the application of any method or substance for the destruction of pathogens, and of other organisms so far as practicable, and which, in the opinion of the health officer, is effective and does not adversely affect the equipment or the milk or milk products or the health of the consumers.

"The bactericidal procedures outlined below are designed to destroy vegetative bacteria but not necessarily spores. Spores are generally of little sanitary significance in milk utensils but in certain instances, if (present) in sufficient numbers, may impart undesirable flavors or result in abnormal changes. If it is considered desirable to destroy all spores, more severe treatment is necessary such as exposure to hypochlorites (. . . . .) for extended periods.

"Steam, hot water or hot air treatment shall not be accepted as satisfactory compliance unless the equipment or containers are first thoroughly cleaned and completely im-

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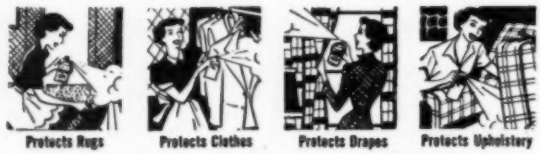
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mersed or exposed for at least the required time at the required temperature or higher throughout the period of exposure. Pouring hot, or so-called boiling, water, from vessel to vessel is not adequate, and shall not be accepted."

Similarly, "chemical treatment shall not be accepted as satisfactory compliance unless the equipment or containers are first thoroughly cleaned. . . . Following cleaning, articles should be completely immersed or exposed (including spraying, where permitted) for at least two minutes (or longer with some bactericides) in a solution of at least the minimum concentration recommended . . . and within the limits of the prescribed reaction (pH). Additional exposure time must be allowed for solutions below 75°F."

Restaurant Sanitation

AN Ordinance and Code Regulating Eating and Drinking Establishments has been recommended by the Public Health Service "for adoption by States, municipalities, counties, and health districts in order to encourage a greater uniformity and a higher level of excellence in the sanitary control of eating and drinking establishments." This ordinance has been adopted by 29 states, the District of Columbia, 212 counties and 529 municipalities in 43 states and Alaska, a population of over 70 million.

Section 6, Item 10, "Cleaning and Bactericidal Treatment of Utensils and Equipment" also requires that "all multi-use eating and drinking utensils shall be thoroughly cleaned and effectively subjected to an approved bactericidal process after each usage." Following thorough cleaning, satisfactory compliance requires that utensils be "effectively subjected to one or more of the following or other equivalent approved bactericidal processes: By *approved bactericidal process* is meant the application of any method or substance for the destruction of pathogens and all other organisms so far as practicable, and which, in the opinion of the health officers, is effective and does not adversely affect the equipment or the food or drink or the health of the consumer."

It is recommended that, wherever practicable, bactericidal treatment should be obtained through the use of hot water, specified as "immersion for at least two minutes in clean, *hot water* at a temperature of at least 170°F. or for ½ minute in boiling water."

Chloramine T—Bactericide

THE second alternative method of bactericidal treatment permitted for eating utensils is "immersion for at least two minutes in a lukewarm *chlorine* bath containing at least 50 ppm of available chlorine if hypochlorites are used, or a concentration of equal bactericidal strength if chloramines are used." Although it has been known for many years that solutions made from compounds containing chloramine have a slower bactericidal action than hypochlorites containing an equal concentration of available chlorine, the equivalent values were not known. Accordingly, studies were undertaken in our Milk and Food Sanitation Laboratory some time ago to determine the concentration of chloramine-T which is bactericidally equivalent to 50 ppm. of available chlorine as hypochlorite. The procedure used was a modification of that reported by Weber and Black[4], with time intervals modified for shorter and longer periods, higher dilutions for plating, volume adjusted for neutralization of chlorine, with results based on the time required to kill 99.9999 percent of the organisms exposed.

The results obtained with *Micrococcus pyogenes* variety *aureus* in the absence of organic matter were reported by G. R. Weber in the April 14, 1950 issue of *Public Health Reports*[5]. His results showed that chloramine-T compounds with pH ranges higher than about 7.5 "generally appear to be too slow to be of practicable usage in food utensil disinfection where only short periods of exposure are to prevail. Even increasing the concentration of these compounds up to as much as 30-fold (from 50 to 1,500 ppm.) does not shorten the killing time sufficiently so that these chloramine-T compounds are quite equal in speed of reaction to even the more alkaline hypochlorites." For example, with hypochlorites, 50 ppm. at pH 8.5 killed the test organisms in less than five seconds, whereas 50 ppm of chloramine-T required 31.5 minutes, 500 ppm. 8.5 minutes, 1000 ppm. 4.4 minutes, and 1500 ppm required 2.7 minutes.

Weber concluded that "if chloramine-T compounds are to be employed for bactericidal treatment of food and milk equipment, the pH, in addition to concentration of available chlorine, should be determined and from this information an adequate exposure period provided. Generally, this exposure period should be considerably greater than for hypochlorites under similar conditions. Although chloramine-T compounds would appear to have limited usage only where rapid germicidal action is required, they may be the germicide of choice under certain special conditions where long exposure periods are practicable."

Factors Affecting Quaternaries

THE ordinance and code regulating eating and drinking establishments also provides for exposure to steam, to hot air and to "other bactericides. The health officer should not permit restaurants to use any other form of bactericide until he has satisfied himself by his own or other official tests that it is satisfactory. It is essential that the concentration of the bactericide be measurable by a simple and accurate field test, so that it can be determined whether adequate quantities are being used."

The necessity of having tests to measure the residual bactericidal agent in terms of its bactericidal efficiency was discussed by C. T. Butterfield[6]. He called attention to the interfering action of natural waters which adversely affected many quaternaries, and concluded that "Pending the development of residual tests which provide an accurate measure of bactericidal efficiency, anyone contemplating the use of such compounds for disinfection would be well advised to make bacteriological tests of the product under consideration in the water to be used and under the conditions in which it will be used." This was substantiated in a later summary of data prepared by Butterfield, Wattie and Chambers[7] who stated, "tests which measure residuals in terms of their active bactericidal content are a primary essential for the economic and safe use of

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any chemical method of disinfection. In using disinfecting procedures in the absence of satisfactory residual tests, the only safe alternative is to make bacteriological examinations with the product under consideration in the water to be used and under the conditions in which it will be used." In other publications we have discussed in more detail factors affecting the germicidal activity[8], and particularly, inhibitors for neutralizing the germicidal action of quaternary ammonium compounds[9], [10].

Policy—Milk and Food Sanitation

UNDER date of May 19, 1949, the Chief of the Milk and Food Branch of the Division of Sanitation stated, "The PHS Milk and Food Sanitation Advisory Board has recently approved by mail ballot the insertion of the following statement concerning quaternaries, based on the findings of the PHS Environmental Health Center, under Satisfactory Compliance of item 14r of the forthcoming revised milk code (PHB 220):

'Since the efficiency of the numerous quaternary ammonium bactericides on the market varies widely and is affected by the mineral content of the water in which they are used, it has not been possible as yet to establish standards of minimum concentrations effective for all compounds and under all conditions. The health officer should permit the use of only those quaternaries and only in those concentrations and contact periods which he has found by suitable test to be effective in the water to be used. In the absence of any reliable and rapid chemical test of the bactericidal efficiency of quaternaries, a suitable bacteriological procedure is recommended, such as that of Weber and Black, AJPH Oct. 1948, p. 1405). The swab test is not considered suitable for this purpose at the present state of knowledge of quaternaries. It may be possible eventually to prepare a synthetic test water incorporating all interfering substances in such a standardized manner as to permit the testing of quaternaries in a central laboratory under conditions equivalent to those of actual use.'

"The above procedure is considered satisfactory for determining the bactericidal efficiency of quaternaries for use by milk plants and food establishments using the city water supply. The problem of testing the many compounds offered on the market against each dairy farm water supply and each private water supply used by food establishments presents practical difficulties, the solution of which is not obvious at this time.

"In the case of detergent-sanitizers containing quaternaries, the problems involved are similar to those for quaternaries, (. . .). In wash water the use of an effective detergent-sanitizer, in which the detergent is not incompatible with the sanitizer, will reduce the bacterial count of the wash water and of the utensils washed therein, thus reducing the bacterial load on the final bactericidal process. However, the use of detergent-sanitizers for single-stage washing and sanitizing, as recommended by certain manufacturers, is contrary to the accepted practice of separating the washing and the sanitizing processes. In the interest of accumulating further knowledge on the subject, however, health officers are justified in granting provisional permission for limited experimental use of single-stage detergent-sanitizers under carefully controlled conditions."

On January 6, 1950, with reference to field trials of detergent-sanitizers on dairy farms, he wrote, "we would not penalize the dairy farms for not providing other bactericidal treatment of equipment and utensils on a rating survey if the health department is actively engaged in a controlled field trial on cleaner-sanitizers and provided those farms that are using the cleaner-sanitizer have been designated by the health officer as being experimental farms. By 'controlled' field trials we mean such trials as are being supervised by the health officer and in which specific data on the results are being accumulated", and on February 16, "we have no objection to the use of detergent-sanitizers in two distinct operations on dairy farms, provided that the detergent-sanitizer used is approved by the local health department."

On November 21, 1950, in referring to the use of quaternaries on farms, he stated, "since there is no reliable and rapid chemical test for the bactericidal efficiency of quaternaries, and since the efficiency varies with the compound and the water, we do not see how their use can be accepted on dairy farms by survey officers unless evidence is available that the quaternary used has been checked by the local or State health department in the individual farm water supply used and found to be compatible. This evidence would consist of the results of a suitable bacteriological precedure, such as that of Weber and Black (*AJPH*, October 1948, p. 1405).

"As few health departments are likely to test each quaternary against each individual farm water supply, the use of quaternaries on farm utensils will ordinarily not comply with this criterion except for experimental use under the supervision of a local or State health department. It may eventually be possible in such a standardized manner as to permit the testing of quaternaries in a control laboratory under conditions equivalent to those of actual use.

"In view of the above it is our opinion that survey officers would be justified in deducting five points where quaternaries are used and the aforementioned evidence is not available for the particular quaternary used as checked against the individual farm water supply."

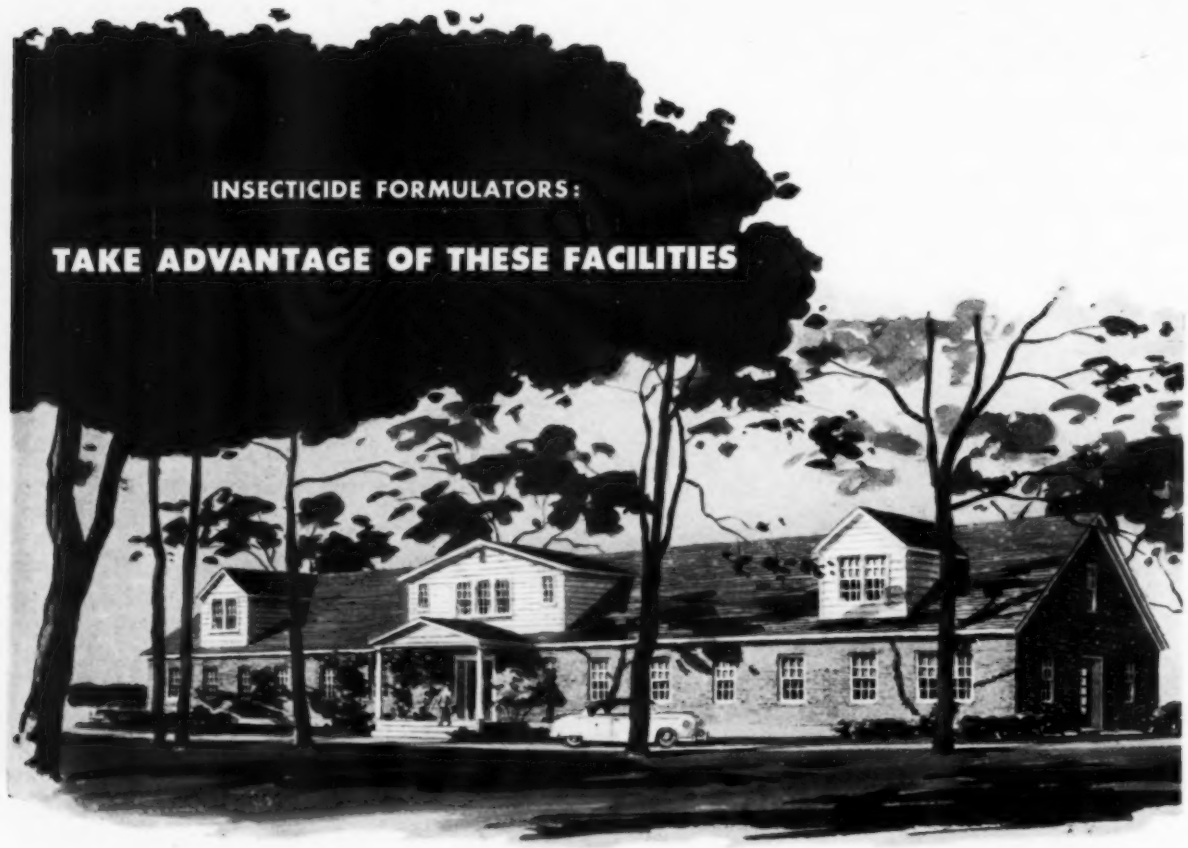
Policy—Interstate Carriers

UNDER date of November 17, 1950, the Chief of the Interstate Carrier Branch of the Division of Sanitation, stated "The present policy of the Public Health Service is to consider quaternary ammonium compounds unsatisfactory for use on interstate carriers. This position would not, however, necessarily prohibit their use in each of the interstate carrier commissaries or other fixed establishments used by interstate carriers.

"Due to the many factors affecting the bactericidal efficiency of quaternary ammonium compounds, the effectiveness of any particular quaternary would, of necessity, have to be determined in each water in which it is to be used. Determination of effectiveness should be made in accordance with testing procedures as outlined by Weber and Black of the Public Health Service in the *American Journal of Public Health*, Vol. 38, No. 10, October 1948. Results obtained by a commercial laboratory alone are not considered acceptable.

"If a State or local health department has determined that any par-

(*Turn to Page* 153)



Our new Port Jefferson Laboratory—one of the finest commercial laboratories of its kind in the world—is now available to assist *you* with your problems.

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Experienced chemists and entomologists, familiar with many of the chemical and biological problems of insecticide formulation, are ready to "pin-point" your problems and offer quick and practical suggestions.

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John Powell Laboratories, Inc.
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AFFILIATE OF JOHN POWELL & CO., INC. SERVING THE INSECTICIDE INDUSTRY FOR MORE THAN A QUARTER OF A CENTURY.

TRADE NEWS

Sanitarians Meet Aug. 21

The 15th annual convention of the National Association of Sanitarians will be held Aug. 21-25 at the Floridian Hotel, Miami Beach, Fla. In addition to a discussion program of various aspects of sanitation, there will be exhibits of sanitary products and equipment. Among those scheduled to exhibit are Camp Chemical Co., Brooklyn; Economics Laboratory, Inc., St. Paul; Diversey Corp., Chicago; U. S. Industrial Chemicals, Inc., S. B. Penick & Co., and Prentiss Drug & Chemical Co., all of New York.

Medal to Dr. J. L. Wilson

Presentation of a silver medal in recognition of outstanding services was made recently to Dr. John L. Wilson, director of research and development of Economics Laboratory, Inc., St. Paul, Minn. The award was made by the Minnesota Industrial Chemists' Forum, of which Dr. Wilson is a former president, at a recent meeting. He is also retiring president of the Minnesota Federation of Minnesota Engineering Society.

Mrs. Jean Weed Dies

Jean Droppers Weed, wife of Dr. Alfred Weed, vice-president of John Powell & Co., New York, died July 16 at the Post Graduate Hospital, New York, following an operation. Mrs. Weed was believed to be well on the road to recovery, but took an unexpected turn and passed away suddenly. Funeral services were held at Fairchild Chapel, Flushing, L. I. on July 18. In addition to Dr. Weed, she is survived by her mother and three children. Mrs. Weed, like her husband, was a graduate of the University of Wisconsin.

Krebs' Third Girl Born

Pamela Joan Krebs was born June 9 to Mr. and Mrs. Walter O. Krebs. The baby's father is vice-president of American Standard Manufacturing Co., Chicago, and treasurer of the National Sanitary Supply Association. In addition to Pamela Joan, the Krebs' have twin daughters.

Revise Warfarin Mail Rules

A revision in the postal regulation covering warfarin rodenticide appeared in a recent notice in the *Postal Bulletin*. The revision states that warfarin is mailable in the concentrated form (0.5 per cent) in quantities not exceeding eight ounces in one parcel if labeled in accordance with the Federal Insecticide, Fungicide and Rodenticide Act. The bait form (0.025 per cent) is mailable in quantities not exceeding 48 pounds in one parcel if in individual packages not exceeding four pounds each.

In addition, the new mailing instructions state that packages must be individually cushioned in a strong, tight mailing carton such as a 200-pound test fiber-board carton, with partitions, inner liner and top and bottom pads of double-faced corrugated fiberboard which will bear safe transmission in the mails. All seams of the carton must be sealed tightly and the carton marked "Poisonous Composition."

Penick Warfarin Booklet

Results of a user survey of its brand of warfarin rodenticide are summarized in a booklet, "A Year's Experience with 'Dethmor' (Warfarin) for Rat and Mouse Control," issued recently by S. B. Penick & Co., New York. Testimonials from official agencies, industry and pest control operators, together with excerpts from publications of the U. S. Public Health Service and the Fish and Wildlife Service are included. The use of the Penick brand warfarin rodenticide to control rodent infestation overseas, particularly in sugar cane fields, and to combat economic losses reported in rice fields, coffee warehouses and peanut plantations is also discussed.

Buys West Paper Firm

Lesavoy Industries, Inc., New York paper and paper products manufacturer and distributor, recently purchased Pennsylvania General Paper Corp., Coatesville, Pa., from West Disinfecting Co., Long Island City. Pennsylvania General Paper produces industrial paper toweling.

Pesticide Law Revisions

The 1950-51 revision to the NAIDM Compilation of Economic Poisons is now being mailed, it was announced recently by the Chemical Specialties Manufacturers Association. The revisions are printed matter and are being mailed from Washington, D. C. They were prepared and produced under the direct supervision of John D. Conner, the Association's general counsel. The third revision carries changes made up to June, 1951.

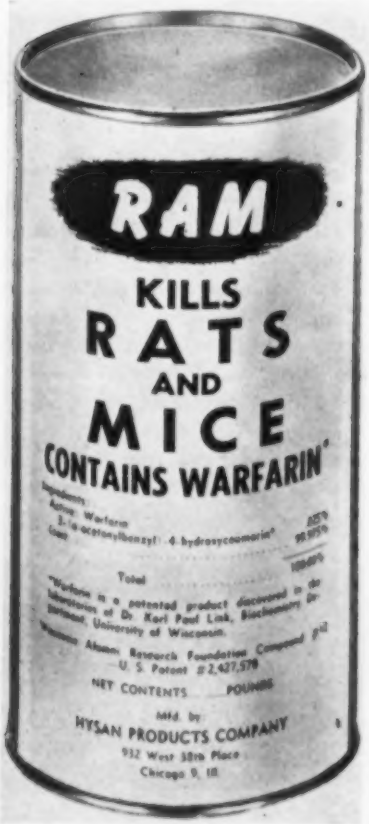
District managers of the field service organization of Diversey Corp., Chicago, gathered at the Edgewater Beach Hotel, Chicago, recently for a clinic on sales management. W. E. Noyes, Diversey's vice-president in charge of sales (seated at extreme right) presided at sessions.

Photograph above was taken during the annual outing of F. W. Hoffman & Co., Philadelphia, July 20. Among those present from the supply trades were Marshall Ward of F. W. Lason Co.; Charles and Robert Solly and Murphy Cohen of Harley Soap Co.; A. Eavenson of Bromm Chemical Co.; E. Dillabough and Wm. Ridpath of Solvay Sales Co.; Earl Wilgus of Scott Paper Co.; George Franks of S. C. Johnson Sons; A. Kammerer of Oil-Dri Corp.; Roscoe Turner of Pry Corp. of America; Robert Lee, Procter & Gamble Co.; Martin Peters of Moore Brothers Co.; Robert Connell, Piatt & Smillie Chemicals; F. Mather of Ox Fibre Brush Co. and Al Hall of Clarke Sanding Machine Co. Sanitary supply men present were Jay Zucker of State Chemical Co., Cleveland, and Sidney J. Bockstanz of Bockstanz Brothers Co.

New Toxaphene Booklet

"Toxaphene Agricultural Insecticides" is the title of a 26-page booklet issued recently by Hercules Powder Co., Wilmington, Del. Forms in which toxaphene can be made into a finished insecticide dust or spray, to meet specific requirements, are listed.

"Ram" is new rodenticide containing warfarin now being made by Hysan Products Co., Chicago. The new rodenticide, based on the anti-coagulant, warfarin, is designed not only to overcome bait shyness but to be an attractant as well.



New Bromm Insecticide

The development of a new insecticide, said to be non-toxic to warm blooded animals, yet effective against all common insect pests, was announced recently by Bromm Chemical Co., Evansville, Ind. Other properties include non-staining and freedom from unpleasant odor, according to the maker. The new insecticide is being packaged for distribution under the trade name, "Formula '444'." It is claimed to contain a new insecticidal ingredient that increases insect kill. It is being promoted for use in packaging houses, canneries, dairies, hotels, restaurants, hospitals and other industries specializing in food processing, etc.

A new, portable, electric aerosol sprayer for use by industry in applying "444" was also announced by the company. It is the "Torpedo" sprayer, made of stainless steel with a "Plexiglass" plastic handle. It delivers the insecticide in an activating vehicle of dry steam superheated to 650° F.

New Chlorine Dispenser

A new unit, the HTH-Hypochlorinator, has been designed to dissolve the Mathieson calcium hypochlorite tablets, and dispense the resultant chlorine solution at controlled rates, according to a recent announcement from Mathieson Chemical Corp., Baltimore, Md. The unit is said to be readily adaptable to use in chlorinating small potable water plants, industrial waste and sewage, cooling water (where algae control is a problem), for sanitizing bottle washing equipment, and other applications where sterilization by chlorination is necessary.

According to Mathieson, the new HTH-Hypochlorinator combination eliminates the disposal of insoluble sludge and clogging of equpiment. The hypochlorite tablets used in feeding the unit contain 7-per cent available chlorine, with no binder or filler, and weigh about one-sixth of an ounce.

New Johnson Plant

Johnson Chemical Industries, Inc., Curtis Bay, Md., is building a new factory in Catonsville, Md. The firm manufactures laundry, dry cleaning and industrial chemicals.

Opitz to Alter Claims

John Opitz, Inc., Long Island City, N. Y., recently entered into a stipulation with the Federal Trade Commission to stop claiming that "J-O Paste" affords complete control of roach or rat infestations. The company further has agreed to discontinue representing that the product is the most effective one for control of rats or roaches; that it contains the most toxic chemical used in exterminating pests; that it will rid premises of rats, and that rats consuming the product will leave the premises to die.

Unqualified claims that the preparation is safe are also to be stopped under terms of the stipulation. The agreement, however, does not prevent representations that it is safe unless taken internally by human beings or domestic animals.

New Liquid Wax

"Tremwax," a new liquid wax, claimed to be "slip-resistant" was added recently to the line of flooring maintenance products of Tremco Manufacturing Co., Cleveland. The new wax is suitable for use on all types of floors according to the maker, who also operates a branch in Toronto, Canada. The wax is listed as an anti-slip material by Underwriters' Laboratories, the manufacturer states.

Washburn Wax Booklet

Issuance of a booklet dealing with a wax and two ammonia soluble resins for use in emulsion type waxes was announced recently by T. F. Washburn Co., Chicago. Physical characteristics of the three materials: "Carbenia No. 3573," "Shelite No. 3551" and "Shelite No. 2694," are listed in the booklet, as are suggested formulations of wax products incorporating these as ingredients.

Packaging Inst. to Meet

The 13th annual forum of the Packaging Institute will be held Oct. 22-24, at the Hotel Commodore, New York. Members of the program committee are as follows: E. H. Balkema, Colgate-Palmolive-Peet Co., New Jersey; John A. Warren, American Home Products Corp., New York; Herbert T. Holbrook, Standard Cap & Seal Corp., New York; John C. Bird, Lederle Laboratories, Div. American Cyanamid Co., New York; Robert de S. Couch, General Foods Corp., New York; Charles O. Kendall, E. R. Squibb & Sons Co., New York; and R. Chester Reed, The Texas Co., New York.

Among the technical papers scheduled for the meeting is a report on "Evaluating the Resistance of Packaging Materials to Insects."

Named to Warwick Post

Warwick Chemical Co., a division of Sun Chemical Corp., Long Island City, N. Y., recently appointed Donald D. Gafliardi director of product development.

James Pucci (right), regional sales manager for Iowa and Nebraska for E. L. Bruce Co., Memphis, Tenn., demonstrates the improved "Dooz-It" applicator for Howard Browning, Bruce's sales manager for household products, at recent convention of National Assn. of Retail Grocers, held at the Navy Pier in Chicago.
Also showing was O-Cedar Co., Chicago, which featured a demonstration-display of its new "Dri-Glo" furniture polish.

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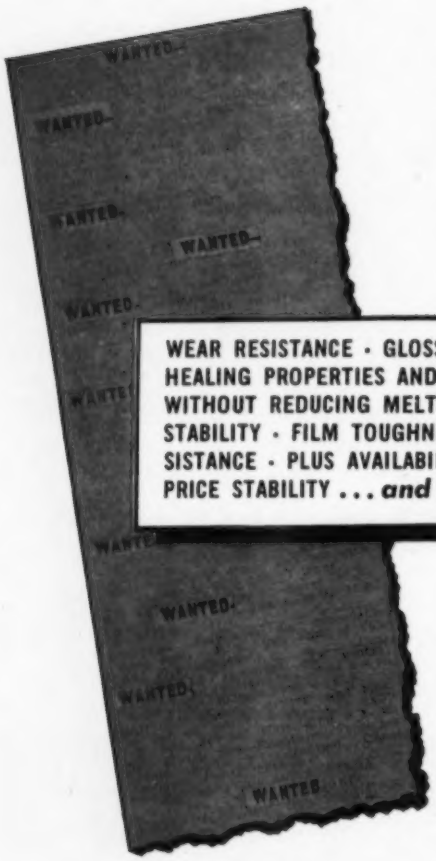

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REPRESENTATIVES IN PRINCIPAL CITIES

American Can Changes

The appointment of W. E. Vaughn as assistant general manager of sales and the naming of G. W. Reese

W. E. VAUGHN

as general manager of manufacture was announced recently by American Can Co., New York. Mr. Vaughn has been with the firm for 25 years. Formerly he was an assistant to the general manager. Mr. Reese, who was assistant general manager of manufacture, succeeds S. D. Arms, who was recently elected vice-president in charge of the Atlantic Division.

Other changes in the manufacturing division include the naming of F. J. Green and C. F. Lausten, formerly managers of manufacture in the firm's Atlantic and Pacific Divisions, respectively, as assistant general managers of manufacture. Mr. Green has served the company for 28 years and Mr. Lausten for 23 years.

R. B. Thompson and A. T. Augenson, formerly assistant managers of manufacture in the Atlantic and Pacific Divisions, respectively, have been advanced to managers of manufacture of the divisions in which they held their previous positions.

Evans G. H. Wood V.P.

Walter J. Evans, assistant general manager of G. H. Wood & Co., Toronto, Canada, was appointed vice-president in charge of sales for Canada and the United States, it was announced recently by Geoffrey H. Wood, president and general manager. G. H. Wood & Co. has 30 branches in Canada for the sale of its sanitation products and is now promoting their extensive sale in the United States.

Monsanto DDT Booklet

A 20-page instruction booklet for the use of "Santobane" (DDT) dusts or sprays for insect control is available from Monsanto Chemical Co., St. Louis, it was announced recently. The booklet describes the several types of DDT formulations, including dusts and wettable powders, emulsions, solutions and aerosols and discusses the best uses for each. Type of formulation, timing, dosage and necessary equipment are detailed for controlling various insects.

Crown Can Advances Tull

The appointment of Harvey C. Tull as general sales manager of Crown Can Co., Philadelphia, was an-

HARVEY C. TULL

nounced recently by R. P. Swartz, president. He has been with the company since 1936, and recently was Philadelphia district sales manager. He also served as manager of the "Spra-Tainer" and beer can sales division.

Virginia Law Error

In outlining the provisions of the Virginia Insecticide, Fungicide and Rodenticide Law the following phrase was omitted: "by paying an annual fee of $5.00 for each brand in excess of twenty." This phrase should follow "$200.00." The error appeared on page 115 of the May issue of SOAP & SANITARY CHEMICALS.

New steel waste receptacles below announced recently by Rochester Can Co., Rochester, N. Y. Cans come in various sizes and shapes finished in hard, gleaming Du Pont "Dulux" enamel. White, olive drab. Right: New label design at right adopted recently by Uncle Sam Chemical Co., New York, for its "Plastic Gloss" floor polish can.

PRENTISS WARFARIN CONCENTRATE

PRENTISS Warfarin Concentrate,
the wonder rodenticide
for control of rats and mice,
is available in bulk for repackaging,
or for further manufacture as ready-to-use
baits. Ask for full details on this *NEW*, proven PRENTISS...

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FORMERLY R. J. PRENTISS & CO., INC.
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gentle on hands and fabrics
tough on soil and competition
rich lasting suds—even in hardest water—makes TRISOAP ideal for LAUNDERING, SELF SERVICE LAUNDRIES, HAND DISHWASHING and wherever a BETTER soap is needed.

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Janitorial Supply Expands

J. L. Johnson, president of the New Jersey Industrial Co., announced recently the completion of a one-story warehouse for the Janitorial Supply Co. at 25 Hathaway St., Wallington, N. J. Janitorial Supply serves as a distributor of janitorial and maintenance supplies in New Jersey. The new warehouse will permit an increase in inventory.

West Detergent Sanitizer

A new, odorless, general purpose, liquid cleaner and sanitizer for industrial use is now being manufactured by West Disinfecting Co., Long Island City, N. Y. The new detergent sanitizer, "Sanikleen," combines a quaternary ammonium compound as the germicidal agent and a compatible synthetic detergent. Cleaning and sanitizing can be performed in one operation with "Sanikleen," according to the maker. Range of applications of the new detergent sanitizer, which is claimed to be equally effective in hard or soft water and leave no residual film, includes cleaning and sanitizing walls, windows, dishes, glasses, eating utensils and floor surfaces of wood, concrete, linoleum, asphalt tile, terrazzo, etc. It can be used in dairies, food plants and in other operations where low toxicity is a prime consideration. It has been tested extensively for toxicity, the manufacturer states.

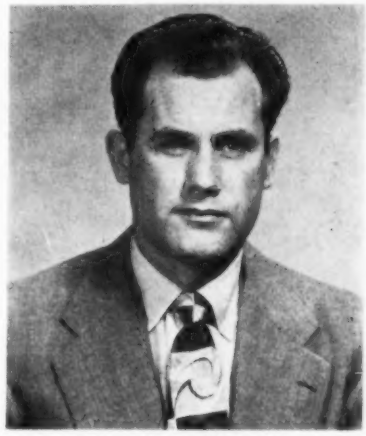
"Sanikleen" may be applied by mopping, scrubbing or brushing. Recommended concentration for general use is one ounce to a gallon of water; extra heavy duty cleaning may require an increase in the concentration, which may be effected without fear of injury to the surface.

New Hysan Rodenticide

A new, ready-to-use rodenticide containing warfarin was announced recently by Hysan Products Co., Chicago. The new rodenticide, called "Ram," is said to contain food products designed to stimulate the appetites of rodents. This tends to speed up the killing action of the rodenticide, which containing warfarin, causes the animals to hemorrhage internally. "Ram" is packaged in a 16-ounce can.

Moore Joins Velsicol

H. Moore has joined Velsicol Corp., Chicago, as a field entomologist, with headquarters in the Southern



H. MOORE

States. He will work with Federal and State experiment stations in connection with research being conducted with Velsicol insecticidal products. Before joining Velsicol, he was associated with the New Mexico Extension Service as Extension Entomologist.

Bobrick Man on Bank Board

William S. Louchheim of Bobrick Manufacturing Corp., Los Angeles was elected recently as a director of the Tradesmen's National Bank and Trust Company of Philadelphia. A graduate of Cornell University, he was assistant vice-president of the Tradesmen's bank before going on active duty with the U. S. Navy during World War II. Upon being transferred by the Navy to Los Angeles, he remained there after the war and became associated with Bobrick Manufacturing Corp.

DCAT to Meet at Shawnee

The annual meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade will be held September 20-22nd at Shawnee-on-the-Delaware.

Food Sanitarians Meeting

"Quaternaries and Chlorine in Udder Washing" will be discussed in a paper of that title by Dr. P. R. Elliker of Oregon State College at the 38th annual convention of the International Association of Milk and Food Sanitarians. The meeting is to be held at the Hotel Colorado, Glenwood Springs, Colo., Sept. 26-29. Dr. Elliker's paper is to be presented at the milk section meeting. In addition, a paper, "Cleaning and Sanitizing Permanent Pipeline Installations," will be read by Dr. W. H. Haskell of Klenzade Co., Beloit, Wis., at the same session. Other phases of sanitation are to be discussed at the meeting. Dr. W. L. Mallmann of Michigan State College is scheduled to speak on "A Performance Test for Evaluating the Effectiveness of Jet-Type Dishwashing Machines." His paper will be presented at the food section meeting.

British PCOs Elect

The British Industrial Pest Control Association recently announced the 1951-52 list of officers as follows: president, S. W. Hedgcock, Chelsea Insecticides, Ltd.; vice-president, Duncan R. Leitch, Ratsouris Ltd.; treasurer, S. F. Sprange, The London Fumigation Co., Ltd.; and directors, C. L. Claremont, Rodent and Insect Pest Destruction Co., and G. P. Pollard, Petro-Chemicals Ltd.

Amer. Chem. Co. Moves

The American Chemical Co., Roanoke, Va., has recently purchased a three-story building, including railroad sidings, in Roanoke, Va. The company will move to its new quarters in January 1952.

Higburg Forms Own Co.

The formation of Williams Chemical Corp., Indianapolis, to manufacture and sell chemical products, as well as act as sales agents, manufacturers representatives and brokers for these products was announced recently. William Higburg, associated with Reilly Tar & Chemical Corp., Indianapolis, for over 30 years is president of the newly organized concern.

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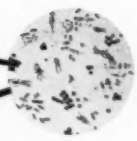
goes a long way . . .



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The new Vancides are *non-toxic to humans* and other warm-blooded animals.

The new Vancides are *economical* because very low concentrations provide effective control of bacteria and fungus growth. Non-volatility and stability over wide temperature ranges insure maintenance of preservative power.

CONTROLS FUNGI

The new Vancides are *safe to handle.* Tested on humans from ages 10 to 74, the Vancides were neither primary irritants nor skin sensitizers.

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NACA Meets Sept. 5-7

The National Agricultural Chemicals Association will hold its 18th annual meeting at the Essex and Sussex Hotel, Spring Lake, N. J., September 5-7, according to Lea S. Hitchner, executive secretary of the group. Representatives of state and federal government agencies, as well as industry leaders will appear on the program. The annual banquet will be held on Thursday night, September 6, with J. Albert Woods, president of Commercial Solvents Corp., New York, as speaker.

Other speakers include Dr. H. L. Haller, U.S.D.A. Bureau of Entomology and Plant Quarantine; Dr. Firmen E. Bear, Rutgers University, New Brunswick, N. J. and W. R. Allstetter, deputy director of the Office of Materials and Facilities, Production and Marketing Administration, U. S. Department of Agriculture. President of the NACA is Ernest Hart, president of Niagara Chemical Division of Food Machinery Corporation, Middleport, N. Y.

Maintenance Show to Phila.

The third annual Plant Maintenance Show will be held at Convention Hall, Philadelphia, January 14-17, 1952, it was recently announced by Clapp and Poliak, New York, exposition managers. Formerly held in Cleveland, the show has been moved to Philadelphia to permit greater attendance from the eastern industrial area. The Plant Maintenance Conference will be held during the same period as the exposition.

New Essential Plant

The acquisition of new manufacturing and office facilities at 2200 North 32nd St., Milwaukee 3, was announced recently by Essential Chemicals Co. The new quarters, designated Plant No. 2, are the main headquarters of Essential, which is continuing to maintain its original plant, No. 1, at 3286 North 33rd St., Milwaukee 16. The company's telephone number, UPtown 3-2330, remains the same.

CCC Appoints

Continental Can Co., New York announced recently the advancement of W. K. Newman to director of

W. K. NEWMAN

product sales for the metal division and the naming of Bruce R. Petersen as sales manager of the Boston district. Mr. Newman was formerly a product sales manager in the metal division. He has been associated with the company since 1940. Mr. Petersen has been with Continental since 1947 and formerly was assistant to O. G. Jacob, sales manager of general line products. His former duties have been taken over by J. B. Jack, formerly a special representative in sales.

Kay-Fries Rebuilds Plant

Kay-Fries Chemicals, Inc., New York, announced recently that the work of rebuilding the section of its plant No. 2 at Haverstraw, N. Y., damaged by fire of unknown origin on June 5th, had gotten under way two days after the blaze. Production of some items was resumed almost immediately, and within a relatively short time the remaining units of the plant should be producing the complete line of fine organic intermediates.

Represents Bush Aromatics

The appointment of Hal J. Fouts as sales representative for the Bush Aromatics Division, Dow Chemical Co., Midland, Mich., for the state of California was announced recently. He is handling the sale of aromatic chemicals and perfume compounds from a location at 6253 Hollywood Blvd., Los Angeles.

N.Y.U. Sanitation Course

New York University will offer a new undergraduate course in sanitary science beginning in September, it was recently announced by Dean Thorndike Saville of the college of engineering. The course will be given in response to an increased demand for sanitarians in industry, health and municipal organizations, and will lead to the degree of bachelor of science in sanitary science. Courses will be offered for both day and evening students. The course will cover such subjects as: milk and food sanitation, sewage and sewage treatment, food engineering, water supply, sanitary engineering and others. The course will be open to new students and students already enrolled at the university.

New Penick VP's

The election of W. W. Bell and Dr. W. G. Bywater as new vice-presidents of S. B. Penick & Co., New York was announced recently. At the same time, the election of Giles St. Clair as secretary of the firm was announced. Mr. Bell has been in botanical drug production for over 17 years and is a graduate of Virginia Military Institute. Dr. Bywater received his Ph.D. from Iowa State College and has headed the Penick research division since 1945.

R. W. Bailey Retires

Ralph W. Bailey, president and director of Stillwell and Gladding, Inc., analytical and consulting laboratory, New York, retired on July 1, 1951 because of ill health. Harry W. Dippel, formerly vice-president of the concern has been named to succeed Mr. Bailey.

Mr. Bailey was graduated from Princeton University in 1895 and became associated with the firm in the same year. He has been a member of the American Chemical Society for 56 years, is a member of the American Oil Chemists Society, and the American Pharmaceutical Association. He is known as a specialist in the analysis of glycerine and oils.

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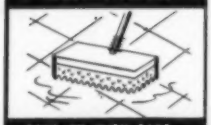

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Non-Ionics

(*From Page 36*)

use with builders or for further formulation into a completely built detergent.

3. Detergency data indicate that when properly built with sodium tripolyphosphate and soda ash this organic detergent base compares favorably with materials having proven effectiveness for cotton detergency in either soft or hard water.

Literature Cited

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Solvent Detergents

(*From Page 49*)

acids, and the mixture added slowly to 200 parts of dry soda ash in an amalgamator. A fine powder results, which does not require further grinding.

II. *Powder containing kerosene as solvent*

Fifty parts of washed acid dodecyl benzene sulfonate 50 parts coconut fatty acids, 46 parts kerosene, and 4 parts of pine oil (used as deodorant) are combined, and the mixture added slowly to 300 parts of dry soda ash. A powder with plastic-like properties, similar to starch, is obtained. The powder is non-caking and does not require further grinding.

Detergent Combinations

COMBINATIONS of alkyl aryl sulfonates with non-ionic detergents are also possible with solvents. Again, the washed dodecyl benzene sulfonate is mixed with the solvent and non-ionic before neutralization. Neutralization can then either be carried out in the concentrated liquid form with concentrated solutions of caustic soda, or in the dry state by adding the acid mixture in a suitable amalgamator with dry alkalies such as soda ash, etc. In the latter case, no solvents or only very small percentages should be used. The presence of the non-ionic detergents gives a clear solution in water of 300 ppm hardness at a concentration of .1 per cent active matter. A solution of dodecyl benzene sulfonate alone at the same concentration will become strongly turbid in water of the same or even lower degrees of hardness. The following detergent mixture gives a clear solution in water, in spite of the presence of a water insoluble solvent such as kerosene.

	parts
Washed acid dodecyl benzene sulfonate	50
"Triton X-100"	25
Kerosene	25

The above compounds are combined and neutralized under cooling with 37 parts of caustic soda solution (36° Be). A stiff paste is obtained, which can be diluted with five parts of isopropanol and 100 parts of water to yield a slightly viscous liquid.

This detergent mixture has somewhat lower foaming qualities than dodecyl benzene sulfonate alone at the same concentration, but shows a sinking time (Draves test) at a concentration of .1 per cent, of only ten seconds. As already pointed out, if a dodecyl benzene sulfonate-non-ionic mixture is to be neutralized in the dry state, it is not advisable to try to add solvents to such a mixture. In this case, the washed acid dodecyl benzene sulfonate is mixed with the non-ionic alone and neutralized with dry soda ash in an amalgamator. The following is an example of this procedure: Combine 80 parts of washed acid dodecyl benzene sulfonate with 20 parts of a concentrated non-ionic, and add the mixture to 300 parts of soda ash. The product is a dry, free-flowing powder.

Practically all types of concentrated, acid-resistant, non-ionic detergents are suitable for admixture to the washed acid dodecyl benzene sulfonate before neutralization, either in the liquid or dry state.

Adding solvents and/or non-ionics, etc., to the alkyl aryl sulfonate detergents is accomplished more easily when using the washed acid sulfonate as the starting point, instead of the finished neutral alkyl aryl sulfonate. A wider range of combinations is possible, the manufacturing procedures are more simple, and the necessary equipment less expensive.

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Sanitary Chemicals

(*From Page 121*)

"Cutol Cleanser" for use in the composing room.

E. Machines — domestic vacuum for radio studio, combination scrubber, polisher and buffer.

Hotel

THE housekeeper of the hotel of 250 rooms and 25 maintenance workers, believes in three cardinal principles for her job—hard work, thorough training of employees and simplicity. Speed is an important factor, too, because of the quick cleaning needed between occupancies of guest rooms and varying functions taking place in the public rooms.

A. Cleaning agents.

1. "Var-Sol" (25 to 30 gals.) for wooden floors, "NL Concentrate" (National Laboratories) (55 gals.) for linoleum, painted walls, bathrooms and washrooms with "Pinex" added as disinfectant (90 to 100 gals.) and venetian blinds. (The

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housekeeper likes "NL Concentrate" especially because no rinsing is required.) "Parker Shampoo" (2 drums) or "Selig's Foam-away" (1 drum), both foam shampoos, for carpets, and "Glamourine" (1 case), a sawdust base carpet cleaner used only where great speed is needed, as in front of elevators.

2. "Wall-X" (8 bottles) for fabbric base wallpaper and venetian blinds.
3. Water and alcohol in winter and water and ammonia in summer for cleaning windows. Footnote: More important than what cleaning agent one uses, says the housekeeper, is plenty of clean water and clean rags.
4. Soap shampoo for upholstered furniture, pure denatured alcohol and furniture polish for rings on wooden furniture, ends of guest soap for washing enamel furniture, saddle soap for leather furniture.
5. "Vani-Sol" for cleaning and disinfecting toilet bowls. The housekeeper concocts her own scrub water for the bathrooms from waste hand soap and Wyandotte scouring powder. She adds green coloring to this to make it look like the commercial product, "Temp," which the maids prefer to use. If "Temp" were used regularly three drums per year would be required.

B. Polishes and waxes—"Vita-Lustre" (one case) for furniture, also used for cleaning marked baseboards, chair legs and imitation leather furniture, "Temp" for doorknobs and other metal fittings, "Blue Ribbon Dominant Polish" for brass mail chutes and doorknobs, "Holcomb's Traffic Wax," non-skid (2 drums) for linoleum and asphalt tile, Selig's "Varnawax" (120 gals.) for wood floors.

C. Deodorants — "Selig's aerosol bombs" (6 cases).

D. Insecticides—professional exterminator, DDT spray for emergencies, "Momar Co." moth-proofing spray in carpet machine distributed with revolving brush, paradichlorobenzene crystals for stored blankets and carpets.

Although calling it an insecticide is questionable, "Roostaway" is used on window sills to keep off pigeons. Perhaps the caption should be changed to "pesticides."

E. Hand soap—"Ivory" (Procter & Gamble Co.) and "Cashmere Bouquet" (Colgate - Palmolive - Peet Co. (100,000 cakes a year).

F. Kitchen—Dubois' "KOL" in dishwasher, Wyandotte soap, aluminum shot powder in silver washing machine, "Brillo." Glasses are washed in chlorine and water at over 140°.

G. Machines—Hill machine for rug shampoo, combination buffer, scrubber and polisher, Breuer electric spray for insecticides and deodorants, domestic vacuums and one high-powered vacuum for public spaces.

Tourist Court

SPEED, efficiency and price are controlling factors for this tourist court of 14 rooms and one maid. The price element is particularly important because the business is highly seasonal and relatively small. These factors make the cost of a single item more important than might be the case for a large hotel for instance.

A. Cleaning agents — Industrial's "Neutral Cleaner" (5 cases) for floors and bathrooms, "Soilax" (10 lbs.) for walls, woodwork and enamel furniture, "Windex" (2 gals.) for windows.

B. Disinfectants and deodorants—"Clorox" in toilets.

C. Insecticides—DDT aerosol bombs, "Cyano Gas" for ants.

D. Hand soap—"Camay" (5 cases).

E. Machines—domestic vacuum for rugs.

Restaurant

SANITARY standards are rigidly enforced for restaurants by State Health Officers. Speed is also important because all cleaning must be done between meal times. The restaurant under consideration has one public and one private dining room and 11 employees.

A. Cleaning agents.

1. Johnson's "No-Rub-Wax" (5 gals.) for both cleaning and waxing cork tile and wood floors. The manager says he uses "No-Rub Wax" and then "rubs like H - - -."
2. Ammonia (2 cases) and water for mirror walls and windows, soap and water for wood furniture, dry wiping for leather furniture.
3. Soap and "Old Dutch Cleanser" for washrooms with muriatic acid (4 gals.) in toilets as a disinfectant.
4. Brass door fixtures, cleaned with "S.O.S." and lacquered.

B. Insecticides — contract with exterminator, "Gulf Spray" (5 gals.) in summer for flies, sprayed through vacuum cleaner attachment.

C. Hand soap—"Lux" (Lever Brothers Co.) cake soap (1095 cakes).

D. Machines—one large and one small waxer, domestic vacuum.

E. Kitchen.

1. Dubois' "KOL" (600 lbs.) in "Hobart" dishwashing machine.
2. Once a month cups are soaked in water with soap powder and "Clorox" for two hours and then rinsed, to remove coffee stains.
3. Glasses washed in brush machine with John Sexton Co. "Defenso Soap Powder" (1500 lbs.), washed and rinsed at 180°.
4. "Old Dutch Cleanser" (6 cases) for scouring utensils. Galvanized steel counters scoured nightly and greased to prevent rusting.
5. "Defenso" also used for cleaning refrigerators and wooden counters.
6. "Clorox" (12 gals.) or "Draino" for drains.

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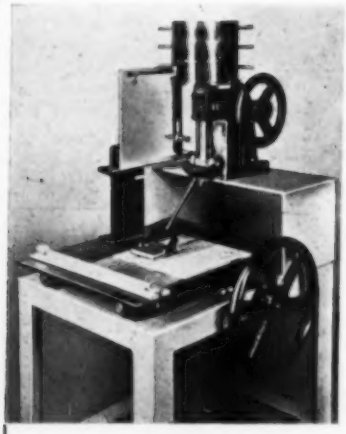

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and enforced by the State Health Department.

The hospital was the only one of the establishments which conducted any laboratory tests of such products. The others test products on the job and judge them by their performance, speed, efficiency and economy.

The reactions of the managers, owners and superintendents interviewed to the calibre of service and help rendered by manufacturers and distributors are remarkably varied. Their comments range all the way from "marvelous" and "100% helpful" to "the salesmen are poorly informed and won't demonstrate." One half of those questioned gratefully praised the products, service and reliability of the manufacturers and distributors. The others had various reservations. Several of the managers, like the owner of the restaurant, were especially resentful of the claims made for various brands of "no-rub" wax. It's just not so, they say.

Four of the managers complained strongly about the incessant calling of salesmen and the consequent loss of time. One was truly proud of the fact that he had "scared them off."

Germicides

(*From Page* 137)

ticular quaternary is effective in the water supply serving the commissary, and if the use of the quaternary is acceptable to that department, then the Regional Office of the Public Health Service would find its use in that commissary acceptable. This, of course, presupposes that the health department is one which has the facilities to make acceptable laboratory tests."

On November 28, 1950, with reference to detergent-sanitizers, he stated, "The use of a detergent-sanitizer for bactericidal treatment is unsatisfactory unless the methods employed provide separate facilities for (1) washing in a sufficient concentration of the detergent-sanitizer to affect proper cleaning, (2) rinsing in clean water, and (3) treating the containers in a solution of sufficient concentration of the detergent-sanitizer to be effective bactericidally.

"Since the sanitizing agent in combined detergent-sanitizers is usually a quaternary ammonium compound, it must be compatible with the detergent and must meet the following criteria which are applicable to quaternaries in general:

The effectiveness of the quaternary would have to be determined in each water in which it is to be used. Effectiveness should be determined in accordance with a testing procedure such as that of Weber and Black of the Public Health Service which was published in the October 1948 issue of the *American Journal of Public Health*. Results obtained by a commercial laboratory alone would not be acceptable. The State or local health department would have to determine that the quaternary is effective in the water in which it is to be used and the use of the quaternary would have to be acceptable to that department. This, of course, presupposes that the health department is one which has the facilities

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to make acceptable laboratory tests and is willing to make the necessary tests.

"The general use of quaternary ammonium compounds for bactericidal treatment of utensils on interstate carriers continues to be unacceptable, chiefly because their effectiveness varies with the characteristics of the water supply used."

Summary

IN SUMMARIZING what the Public Health Service expects of germicides, since their primary purpose is to kill bacteria, this property should be demonstrable by appropriate tests. No one product is equally effective under all conditions and against all microorganisms, hence it is necessary to specify the conditions appropriate for its use. In the ordinary use of a germicide, equipment or utensils treated with a solution of the recommended concentration should not retain a sufficient amount of the agent to cause either chronic or acute toxicity. A chemical germicide for milk and food sanitation should be relatively odorless, and relatively soluble in water dilution, and should not irritate the skin nor be corrosive to equipment. The agent should be active in a practical concentration and should kill non-spore-forming bacteria in a reasonable time and under temperature and pH conditions to be anticipated, as well as in the presence of any organic or inorganic substances and other factors present that may affect a specific chemical adversely. It is particularly important in the control of sanitation practices to have a rapid and accurate field test to demonstrate the presence of an adequate active residual of the chemical germicide.

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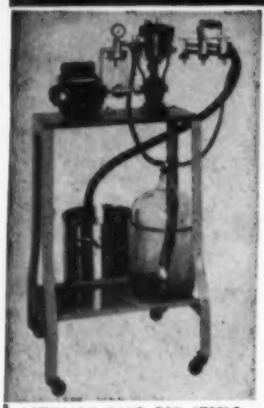

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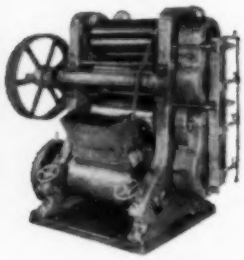

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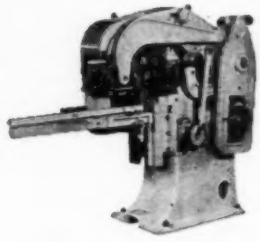

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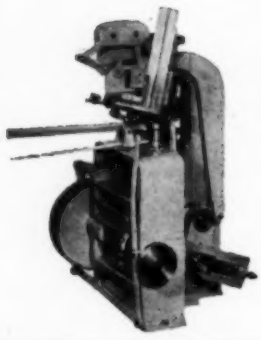

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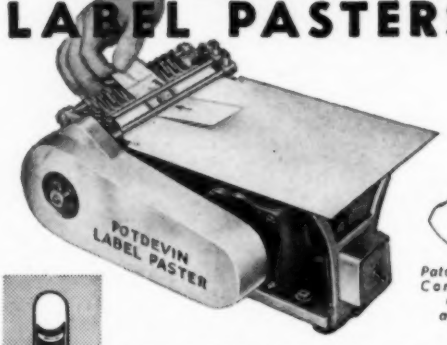

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Every effort is made to keep this index free of errors, but no responsibility is assumed for any omissions.

TALE ENDS

FOR ten years, Herbert W. Hamilton was volunteer, unpaid secy. of the Chemical Specialties Mfrs. Assn. Last month, he took over officially as full-time managing director and secy. of the outfit, one of the oldest trade associations hereabouts, being founded in 1914. After ten years' practice for free, reports that he knows the job pretty well are probably not exaggerated. Here's the best of luck to him from all of us!

• • •

Frank Conolly, manager of the Oakite Products package division and a member of the famous Explorers' Club, sends us a yarn about the sailing of the "Argosy," an auxiliary ketch,—if you know what sort of a boat that is,—from N. Y. on an 80,000 mile expedition to retrace the steps of Charles Darwin made back in 1831-35 on his great evolution quest. We trust that it surprises you not one whit, gentle reader, when we tell you that in the midst of all the tons of canned foods, etc., put aboard the "Argosy" was enough Oakite to wash all the dishes and decks for a couple of years. Frank slipped us this info confidentially and he ought to know!

• • •

What happens to old soap peddlers? Jim Wheeler, prez of Essential Chemicals out Milwaukee way, came up with the answer to this one recently. Holding aloft a flagon of Old Fitz and soda, he bespake himself as follows: "Old Soap peddlers never die . . . they just simply emulsify." What, no saponify? Hand me that shootin' arn, Penelope, this is goin' too fur!

• • •

Chuck Luckman, erstwhile prez of Lever and now a partner in the architect-engineering firm of Pereira & Luckman of Los Angeles, has lost none of his former penchant for getting his picture in the papers. The latest was in the *Los Angeles Times* on the occasion of his being named 1951-52 Community Chest Campaign chairman for Beverly Hills and Bel-Air, Calif. The accompanying news story told how he became prez of Pepsodent at the tender age of 33 and how he headed Lever after the Pepsodent purchase. It didn't mention what happened then.

• • •

Shampoo excise tax is a dead duck right now! This is the grapevine report from the hallowed halls of our country's law-making emporium at Washington, D. C. We hope it's true. But, we wouldn't trust 'em too far, which we believe is also the feeling of TGA. We hear that Steve Mayham, its secy., is keeping one of his eagle eyes pealed in that direction —just in case.

• • •

Warning! Don't mention old coins to Mel Fuld, prez. of Fuld Bros. and v-p of CSMA. Normally, this gent is the strong, silent type, but, express even a passing interest in old coins, and his eyes get that psychopathic gleam and you're off for the races. His normal monosyllabic utterances become a flood of coin jargon which always has been and still is Greek to us. So, be warned! If Mel pulls out an old coin, look dumb!

• • •

During the big Kansas-Missouri floods last month, 600 men marooned by 17 feet of water in the Colgate-Palmolive-Peet plant in the Armourdale district of Kansas City, Kan., were fed regular meals, prepared on GI camp-type stoves brought by boat for the occasion. The job was directed by one lone woman, Mrs. A. F. Horstman, a KC caterer. As the workers were evacuated from the flood-surrounded plant leaving 50 hardy supervisors and maintenance men behind, Mrs. H. departed in triumph via rowboat leaving her husband to finish the feeding job for the 50 tough guys who refused to give up. At the Peck's Products soap plant at St. Louis, the Mississippi just came up high enough to flood the stoker pits, but no further.

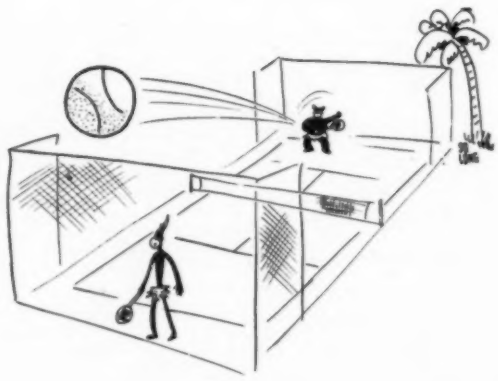
• • •

If you want to find out where we all stand in this soaps versus synthetics rumpus, take a look at the U. S. Dept. of Agriculture (Bureau of Agricultural Economics) bulletin on "Disappearance of Soaps and Synthetic Detergents," released June 20, in The Fats and Oils Situation. Also congratulations to the BAE for one of the finest statistical studies we have yet viewed on this or any other subject!

• • •

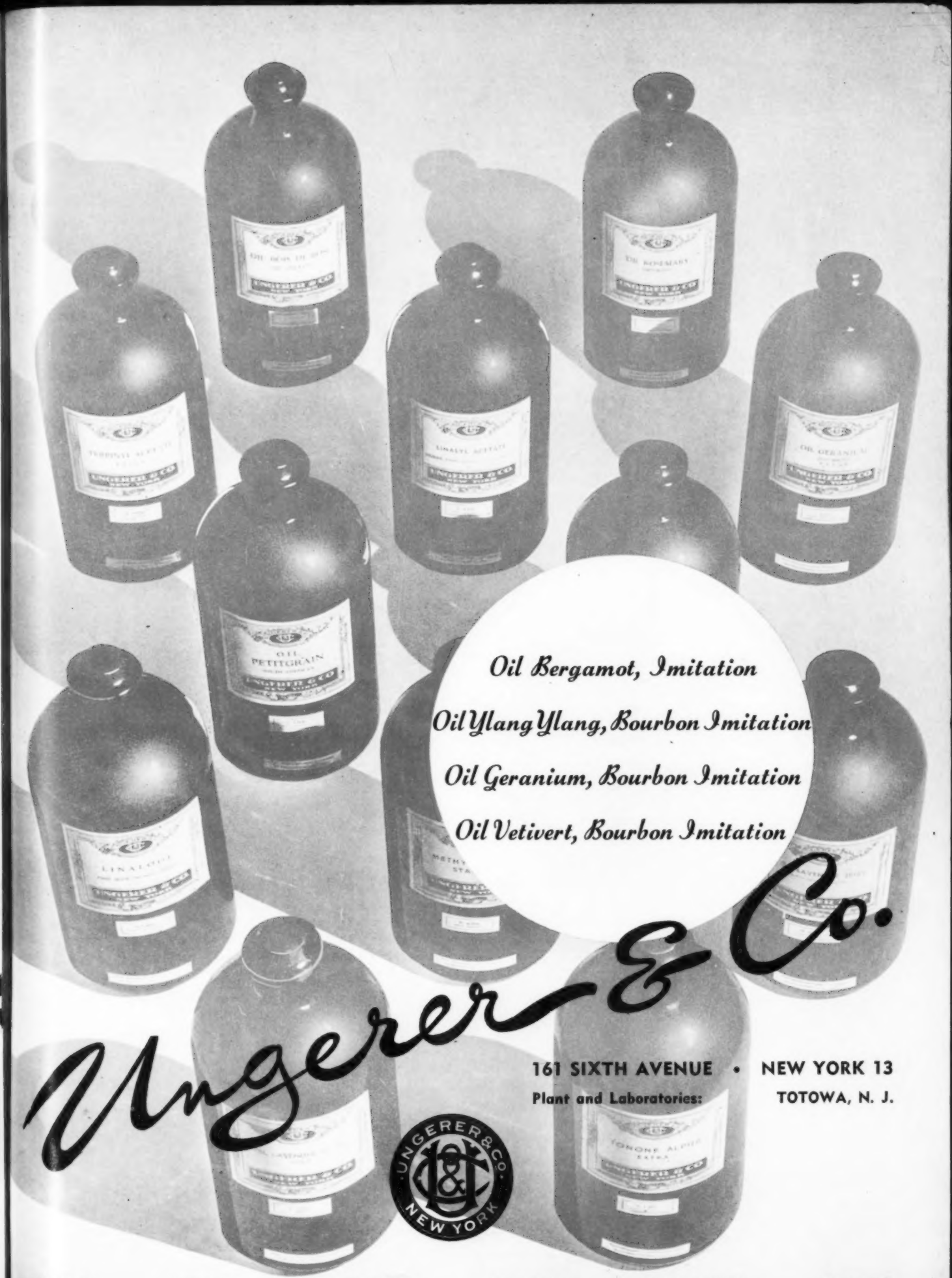
The couple furnished a 12-room house solely with premiums from soap coupons. A visitor looking over the newly-furnished house noted that only five rooms were furnished and inquired how come. They then showed him the other seven rooms filled with soap, states a recent newspaper report. When we first heard this yarn twenty-five years ago, we laughed. This time we didn't even raise a polite snicker. Must be age,—or something.

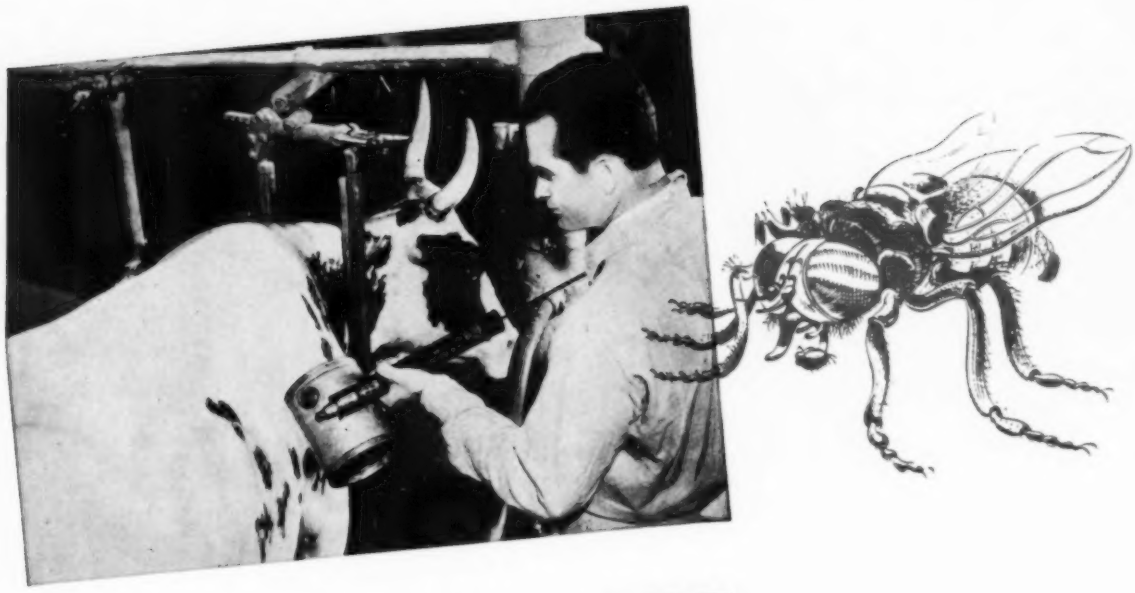
Out, — and how!



WILD tennis shots, like misdirected advertising, usually end up "out." In sharp contrast to advertising directed to specific markets which can be sold. For example, if you would sell and keep selling the field of soaps and detergents, cleaners, floor waxes, disinfectants, insecticides, and allied chemical specialties, you will get no "outs" if you advertise regularly in

SOAP and Sanitary Chemicals
254 West 31st St., New York 1


Oil Bergamot, Imitation
Oil Ylang Ylang, Bourbon Imitation
Oil Geranium, Bourbon Imitation
Oil Vetivert, Bourbon Imitation
Ungerer & Co.
161 SIXTH AVENUE • NEW YORK 13
Plant and Laboratories: TOTOWA, N. J.
UNGERER & CO. NEW YORK
CHICAGO BOSTON PHILADELPHIA ST. LOUIS LOS ANGELES ATLANTA



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